

The enduring impact of Creativity, Activity, Service (CAS) in the IB Diploma Programme: the alumni study

CONDUCTED FOR THE JEFF THOMPSON RESEARCH AWARD

FINAL REPORT, JUNE 2018

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Abstract

This study examined the lasting influence on International Baccalaureate Diploma Programme (IBDP) students who had participated in the experience-based core element Creativity, Activity, Service (CAS). Alumni of the IBDP from all three IB World Regions shared their perceptions of CAS through online survey (n = 903), focus groups (n = 19) and interviews (n = 12). CAS activities were found to have the potential to change how individuals perceived themselves in the world. Engagement, value and support from others were significantly related to lasting outcomes. Activities in which IBDP students are given the opportunity to engage in important work with others can bring deep and lasting changes to individuals. A CAS programme which can effect deep and lasting transformation is characterised by supporting development of students' sense of social responsibility and a sense of their own potential. It was concluded that such CAS programmes have the potential to effect changes which can be lasting and beneficial to the individual as well as the world in which they live.

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Introduction

The purpose of this study was to understand how experiences undertaken by adolescents bring about changes which endure into adulthood. In particular it focuses on the enduring and transformative potential of experience-based education as part of the International Baccalaureate Diploma Programme (IBDP) through perceptions of alumni about the mandatory core element Creativity, Activity, Service, or CAS.

The research focus emerged following a large study completed in 2017 into the impact of CAS on students and communities in two IB world regions (Africa, Europe and the Middle East (AEM) and Asia-Pacific (AP)). There were three stakeholder groups: *students* who were in the process of studying for the IBDP, *staff* in schools who were responsible for the implementation of CAS; and *alumni* of the programme. The *Impact of CAS* study found that, across the diverse school settings in the 89 countries in the sample, perceptions of the positive impact of CAS were remarkably consistent and alumni reported, *inter alia*, that CAS had transformative and enduring effects on them. The reasons why CAS was perceived this way and the concept of 'transformation' were not examined in depth in the *Impact of CAS* study. The current study therefore set out to investigate the nature of the enduring effects in further detail, what kind of transformations are perceived to relate to CAS experiences and to identify characteristics of CAS programmes with these potential outcomes. In focusing on the experiences of those who have successfully completed the IBDP, the alumni study contributes to understanding about the potential of experience-based education to make an impact which endures beyond school days and, moreover, what insight this brings to the role of CAS in the IBDP.

For clarity, the current research will be referred to as the alumni study and the 2017 research as the *Impact of CAS* study.

Creativity, Activity, Service and its aims

Creativity, Activity, Service (CAS) has been part of the IB Diploma, in some form, since 1968 (Hill, 2010) and resonates with that part of an International Baccalaureate education which aims "to develop knowledgeable and caring young people who help to create a better and more peaceful world" (International Baccalaureate Organization, 2016) (IBO, 2016). The concern with developing young people in line with selected characteristics connotes ideas of transformation, of self and world, which will endure in ways with the potential to improve the world in years to come. CAS has been through several iterations, and some of the participants in this study remember it when Activity was Action, or was called CASS (Creativity, Aesthetics, and Social Service). CAS will be used throughout this report to refer to all programmes undertaken by participants.

Currently, CAS is one element of a tri-partite core of the Diploma curriculum, and is an experience-based, holistic component designed to "encourage an exploration of issues of global significance and in so doing allow students to examine links between the local and the global" (International Baccalaureate Organization, 2015, p. 3). Specifically, CAS requires students to be involved in "a range of enjoyable and significant experiences, as well as a CAS project." (*ibid.*). These experiences correspond to three strands – Creativity, Activity and Service – while the CAS project combines two or more strands. The current definitions of the strands, applicable from 2015 onwards, are as follows.

- **Creativity**—exploring and extending ideas leading to an original or interpretive product or performance
- **Activity**—physical exertion contributing to a healthy lifestyle
- **Service**—collaborative and reciprocal engagement with the community in response to an authentic need

(International Baccalaureate Organization, 2015)

The *Impact of CAS* study found that surveyed alumni (n = 903) identified a range of personal benefits from participating in CAS. Some benefits were pragmatic, such as development of skill sets. Some were connected to personal development, such as becoming more resilient, having improved well-being, or learning gained through new experiences. Many alumni referred to eye-opening experiences which made a lasting impression on them. A small number identified benefits in terms of others, citing CAS experiences as introducing them to volunteering (Hayden, Hemmens, McIntosh, Sandoval-Hernández, & Thompson, 2017). Additionally, alumni responses suggested that, for some, CAS experiences had left an enduring impression. 78.3% agreed, or strongly agreed, that CAS helped them learn about life, the world and other people, while 65.3% reported that CAS had had a transformative effect on them (Hayden et al., 2017). A considerable minority slightly or strongly disagreed with these statements, with 74 of the sample adding written comments to say that they could not identify any benefits. This prompted questions about the experiences of alumni: why was CAS transformative and enduring for some alumni and not for others?

The current study addressed these questions through alumni perceptions of the enduring impact of CAS. Firstly, alumni identified which aspects of CAS had a long-term impact; secondly, which of these aspects were significant, as identified across a large population, and in what ways CAS contributed to lasting personal transformation; and thirdly, which characteristics of CAS experiences were perceived to have the potential to have enduring impact of students. These were formulated into research questions to direct the design of the alumni study:

- RQ1. *What aspects of CAS do alumni identify in relation to enduring impact?*
- RQ2. *Under what conditions can CAS be a transformative experience:*
- a) *across a large population?*
 - b) *in ways which are deep and persistent?*
- RQ3. *What are the characteristics of a CAS programme which achieves enduring impact?*

To address these questions a mixed-method, summative evaluative research study was conducted, incorporating both quantitative and qualitative data. Statistical analysis of the extent to which CAS might be considered transformative (RQ2a) was carried out on online survey data from alumni collected as part of the *Impact of CAS* project (Hayden et al., 2017). Fixed and variable categories were tested to establish for significant relationships between continuation into adulthood of CAS-type activities with potential influences on these outcomes, such as enjoyment of CAS, or parental support. Selection of categories to test was guided by a review of literature in relevant areas.

Two new qualitative data sets were generated for this study. Focus groups of alumni were conducted to explore how the terms enduring (RQ1) and transformative (RQ2) were perceived in relation to CAS. The focus groups were also asked to discuss what characteristics might be of a CAS programme which achieved these outcomes (RQ3). Additionally, interviews were undertaken with alumni who had previously identified CAS as being transformational into adulthood (RQ2b). Methodology, design and methods of data collection and analysis follow a review of research literature about the long-term impact of experience-based learning through participating in CAS-type activities in late adolescence.

Review of Literature

Literature from three areas was included. Firstly, research relating to alumni was considered relevant to enduring outcomes of educational experiences; the second area was research findings about educational experiences of 16-19 year olds engaged in activities reflecting the three CAS strands; and the review ends with the limited, but growing, body of research into CAS in the IBDP.

Alumni studies

The literature on the enduring impact of non-academic educational activities is very thin. Furthermore, alumni research into the impact of non-academic activities experienced between the ages of 16 and 19 is particularly scarce and concentrated in the United Kingdom and the United States. Relevant alumni research addressed non-academic, extra-curricular activities, and holistic education. Included studies used mixed methods or qualitative methodologies to research perceptions of graduates of colleges, or universities, 5 to 25 years after leaving their academic establishment.

Clark, Marsden, Whyatt, Thompson, and Walker (2015), researching the relationship between undergraduates' extra-curricular activities and their employment destinations, concluded unequivocally that "extracurricular activities' effects endure" (*ibid.* p139). 620 alumni from one UK university were surveyed. This was followed-up with telephone interviews with 18 of the 620. All were in their mid-twenties to mid-forties, and between five and twenty-five years after completing degrees. Five categories of extra-curricular activity were found to have an enduring impact, three of which echo the CAS strands: Arts/music, sports, and voluntary work. The other two were attending social clubs and paid work. Alumni reported high rates of agreement about the impact of extra-curricular activities on development of five areas in particular: communication skills; decision-making, initiative, and flexibility; interpersonal skills; leadership; and self-confidence and self-awareness.

The next two studies tested the impact of a liberal arts education in the United States. Liberal Arts college programmes are designed as holistic educational experiences to develop the whole person, much as the DP aims to. Pascarella, Wolniak, Seifert, Cruce, and Blaich (2005) used information from a longitudinal database collated by the Appalachian College Association to compare a liberal arts education with two other types of college education in the area. Recorded outcomes pertaining to alumni who were 5, 15 and 25 years post-college graduation were quantitatively analysed and showed that alumni of liberal arts colleges perceived their education to have had a greater impact on their life in the long-term than did those attending public universities or private, master's level colleges. In particular, a liberal arts education was perceived to develop several areas including leadership, civic responsibility and self-efficacy, as well as effecting intellectual, personal, and spiritual development.

Seifert et al. (2008), following up the findings of Pascarella *et al.* (2005), investigated whether a liberal arts education was a robust variable upon which to predict educational outcomes. 723 alumni carried out a battery of tests assessing reasoning, current issues, intercultural development, and psychological well-being. Results showed that a liberal arts education *is* a robust variable and confirmed previous studies findings that liberal arts alumni developed intercultural effectiveness, an inclination to inquire and learn for a lifetime, psychological well-being, and leadership.

There is some agreement in these alumni research findings. All three agree that enduring outcomes from participating in holistic or extra-curricular activities can be personal and intellectual; Clark et al. (2015) and Seifert et al. (2008) found that there were benefits to the social skills of alumni; the study by Pascarella et al. (2005) included perceptions of moral and spiritual benefits; and all three claimed that 'leadership' was an enduring outcome. While these studies indicate evidence of a relationship between broad educational aims and broad outcomes, and shed some light on long-term outcomes

which non-academic or holistic education can effect, research which focuses on outcomes of activities pertaining to the CAS strands was consulted for more specific insight.

The impact of adolescents' experiences in creativity, activity, and service

The research included in this section was conducted with different aims, across different disciplines, and with different methods. Studies met the inclusion criteria of the specified target age range (16 to 19) and activities clearly resembled those required to fulfil CAS. The literature is presented under three sub-sections: creativity, activity and service.

Creativity

There is debate about what creativity *is*. According to Boden (2001), creativity is the presence of imagination, based on, and exploring further than, existing knowledge, either on an individual or societal scope. Others view individual creative acts – 'little c creativity' – as an essential part of human beings' ongoing existence (Craft, 2001; 2005). Amabile and Pillemer (2012) argue that there is great, and growing, attention to the potential associated with creative activities, to be individually beneficial and, at the level of the organization, to conditions conducive to supporting creativity. Creativity in the context of education was understood as fashioning original and valuable outcomes (National Advisory Committee on Creative and Cultural Education, 1999) although this was criticised by Joubert (2001), who detected the motive behind bringing creativity into schools was to contribute to a country's economic output. Arguably, creativity defined in terms of outcomes supports a distinctly Western view, with the focus on output rather than process (Lubart & Sternberg, 1998). The previous CAS specifications defined Creativity as "arts, and other experiences, that involve creative thinking" (International Baccalaureate, 2008, p. 3) whereas, currently, the definition is "exploring and extending ideas leading to an original or interpretive product or performance" (International Baccalaureate, 2015, p8). It would seem that the IB's revised definition of creativity has shifted to a more 'Western' view. The review of literature found two relevant studies which included 16-19 year-olds.

Burnard and Dragovic (2015) studied a group of teenaged musicians who met voluntarily during their lunch breaks to develop a performance piece together for a school event. Individual elements of competence and autonomy combined in the group activity to develop a type of group creativity. It is noteworthy that the group members reported enhanced well-being, and the authors point out that encouragement and working without pressure enabled the musicians to concentrate on rehearsing those parts which they felt were most important. Raw and Marjoribanks (1991), in their study of 350 16-year olds, found that students who perceived both school and home as creative places scored highly on two standard creativity tests: use of an object and word association. The authors concluded that creativity was linked with moral development and self-concept. These two studies suggest that

engaging in creative activities at this age lends support to personal development, and extends beyond the person to have a positive impact on the social groupings in which the activity takes place.

It is more common to find studies which examine contextual elements in relation to education and creativity. The role of the teacher is found to be important in supporting students' creativity. Making physical changes to the learning environment can encourage collaboration and change to stimulate innovative thinking (Davies et al., 2013). Dialogic talk – that is, classroom talk which encourages an evolving, participatory process of coming to understand each other – may stimulate students' creative writing (Caine, 2015). Also important is research recognising that part of the role of the teacher is to develop students' existing creativity (O'Boyle, 2017). Amabile and Pillemer (2012) argue that domain-relevant skills, creativity-relevant processes, intrinsic task motivation, and the social environment all need to interact with each other in a creative act.

Whilst 'little c' creativity is closest to the previous description of the Creativity strand, the current version of the CAS Guide (2015) suggests a more outcomes-focused aim. The limited research, however, points towards potentially broader gains from Creativity in CAS. It could be that, for Diploma students, the Creativity strand could have potential to support their growing autonomy; their well-being; their moral development and sense of themselves in the world. In sum, although the research points towards many aspects to consider with respect to the outcomes of participating in creative activities, relatively little is understood about the enduring benefits to students. Further research into the particular benefits which creative activities may bring to the 16-19 year old age group would make a welcome contribution to knowledge.

Activity

Research on the impact of physical activity on adolescents in the target age range is sparse, although there are a small group of studies, diverse in culture, physical activity focus and methodologies, which are included for consideration here. The *Impact of CAS study* (Hayden et al., 2017) reported the predominance of schools in helping students meet this aspect of CAS, through, for example, P.E. lessons, school sports teams and clubs, and sports days. It is, therefore, useful to refer to a review paper which evaluates research into the outcomes of school sports and extra-curricular activities. In a review of research across several disciplines, including health and the social sciences, Bailey et al. (2009) find, unsurprisingly perhaps, that the most reliable research evidence pertains to the benefits of physical activity to the body and its health. However, the authors find no clear link between exercise at school and lifelong physical activity, and note that there are some 'ambitious' claims about the benefits to young people of engaging in physical exercise. They conclude that social benefits, which include development of trust, a sense of community, cooperation, empathy and responsibility, may

be over-stated, as may the development of affective and cognitive characteristics through physical activity. Elsewhere, there is evidence that a school focus on elite sport may discourage some participants once the compulsory period of education has ended (Lawson, 2010).

The following four studies suggest that effectiveness of participation is related to the appropriateness of activity for individual participants. In the first, able-bodied 15-21 year old participants paired with similarly-aged people with mild to moderate intellectual disabilities in a 15 week, twice-weekly personalised programme of one-hour exercise sessions taking place at the gym of the youth charity, the YMCA. Results showed participation was high, improved fitness in both groups, broke down some barriers to participating in fitness for people with intellectual disabilities, and was considered enjoyable and motivating by both groups (Stanish & Temple, 2012). The second was a retrospective evaluation of an after-school sport-for-development programme in Zambia, called "Go Sisters", which found participants perceived their critical skills to have developed in peer-led, problem-posing workshops held after football sessions. Particularly, participants recognised that critical thinking skills could be applied more widely, beyond the sporting activity (Mwaanga & Prince, 2016). Another sport-for-development study evaluated a 3-year programme where indigenous Australians were taught to surf. It identified several emergent benefits for the participating indigenous Australians, including reconnecting with the ocean, development of intergenerational relationships in sharing traditional knowledge about the land, and bonding with indigenous peers (Rynne, 2016). And finally, improvement in social cohesion was also evident in a study into the effects on North American Indian adolescents of attending extra-curricular activities. Not only did this have a deterrent effect on risky behaviours, such as alcohol or substance, abuse but it also enhanced participants' attachment to the school and exposed them to socially acceptable behaviours modelled by the adults involved (Moilanen, Markstrom, & Jones, 2014). The positive influence of adults was also noted in the Zambian and Australian studies.

These four studies indicate some pertinent common findings suggesting the impact of physical activity can extend beyond adolescents' improved individual health and fitness to include social benefits. Social cohesion is one identifiable beneficial outcome which may also relate to the Service strand. The studies emphasise, however, that observed benefits take time to emerge and that intentionally educative content is crucial to facilitate the beneficial outcomes: sport alone will not lead to changes in social relationships or ways of understanding oneself in the world.

Service

'Service' and 'learning from service' in the context of the IBDP is a problematic area to research. Service and service-learning are terms with origins in community or social service which aimed to address

social disengagement perhaps as far back as the 1930s and Roosevelt's New Deal (Pritchard, 2002). Later, service evolved as politicised community action (Wilczenski & Coomey, 2007). Perhaps because of the diffuse literature, it is not uncommon for service, service-learning, and community service to become conflated (Barber, 1994). More recently, service is being understood in relation to global citizenship in the United States (Caruana, 2011), where it is a compulsory element in many undergraduate courses; although elsewhere, service is related to the developing concept of the self (Yang, Luk, Webster, Chau, & Ma, 2016). Billig (2004), in her review covering kindergarten to Grade 12, draws attention to policy changes in America which brought service into schools in order to nurture in students a moral obligation to engage in civic society. Service, therefore, can be seen as an experience shaping young people into "competent and responsible citizens" (Billig, 2004, p8), with regard to American social traditions of, *inter alia*, voting, political campaigning and volunteering. How applicable this is to the IB's more global aims is not certain and, with regard to the age-group, Billig (2004) confirms findings in other work which conclude that service may have the greatest impact on elementary school pupils, aged up to 14 (Scales, Blyth, Berkas, & Kielsmeier, 2000). Billig (2004) concludes that quality studies emphasise the importance of dialogue amongst teachers and students, particularly with regard to setting goals, and giving students adequate time and guidance for their reflections, in order for service experiences to make an impact. The influence of talk with adults and allowing time for outcomes to develop supports findings described in Creativity and Activity above.

Another relevant area is research into young people's volunteering. A national study carried out on Australian adolescents found that volunteering, in particular, is most likely to be taken up by young people who are supported through their first experience of giving their time (Webber, 2011). Examples cited included school service clubs as one of several entry points to volunteering for young people, as well as through family and friends involved in community organisations, such as the church. According to Webber (2011), schools can provide the organisation needed to guide entry into volunteering as well as nurturing the values associated with it. Young people reported acquisition of new skills and a sense of purpose, as well as enjoying feeling altruistic, with a sense that some consider experiences of volunteering in adolescence as the start of a longer commitment (*ibid.*, p15).

Berger Kaye (2010) advocates service learning in which activities are pertinent to local contexts and participants. Her influence can be detected in the current IB definition of service which includes identification of local needs which are 'genuine' (International Baccalaureate Organization, 2015). The IB, however, places the interest and learning of students firmly at the centre of the service whereas a more collaborative approach can be taken to engage volunteers and beneficiaries in determining the nature of the service act (Berger Kaye, 2016). Although the evidence is very limited for this study's target age-range, entry into service through organised programmes can create a positive culture in

which adolescents are more likely to participate and learn. This implies the importance of the school in facilitating Service experiences in which students can actively engage.

CAS research literature

Lindemann (2012) carried out a web-based survey (n = 71), and 11 follow-up semi-structured interviews, with IBDP alumni who had attended an international school in Brazil between 1997 and 2008. Results showed that participation in CAS Service activities was identified as having raised students' awareness of socio-economic issues and transformed their view of their own role in promoting social change. Supporting the service literature above, Lindemann's participants attributed increased social, political and civic involvement to feelings of empowerment which Service nurtured.

Echoing this point, when it comes to schools mediating the Service part of the CAS experience, research into students' perceptions of the CAS programme in six Turkish schools found that, where CAS was integral with the school culture, students were more positive towards it (Martin, Tanyu, & Perry, 2016). Kulundu and Hayden (2002) focused on implementation of CAS in one school in Lesotho where CAS was treated as extra-curricular and was perceived by the thirty-eight second-year IBDP students as having a peripheral status. Berger Kaye (2016), in redefining the essential relationships in service activities, argues that, to be more egalitarian, students and others should jointly establish the activity's aim, an approach which has the potential to support the purpose of Service in CAS: fulfilling genuine needs in the community (International Baccalaureate Organization, 2015). However, the study of three IBDP students at a Greek school carried out by Hatziconstantis and Kolympari (2016) offers an insight into the way that Service relates to the overarching aims of the IB. They found that the students identified with two theoretical dimensions: from an idealist-humanitarian perspective, volunteering was seen as a selfless, empathetic act to the benefit of others; whereas from a utilitarian-instrumentalist view, volunteering was understood as bringing benefit to the individual, and aligned to a meritocratic ideology. Such a study raises interesting points which would be valuable to pursue with a wider range of schools and students, suggesting that individual assumptions impact on how CAS is enacted. Whilst the school has a responsibility for mediating CAS experiences for its students in ways which reflect the programme aims as well as those of the IB, there are likely cultural, perhaps even familial, value-systems which may act as facilitators or barriers in mediating the way students experience CAS. Hayden and McIntosh (2018) have argued that the existing literature indicates that experiential education offered through CAS has the potential to be transformative. The current study aims to find out how enduring this transformation can be.

Summary of literature review

Existing studies regarding enduring effects of adolescents' engagement with educational experiences and, within that, experiences characterised as creative, active or involving service, reveal some commonalities with respect to outcomes and the conditions for nurturing those outcomes. Reported evidence indicates that CAS may support adolescents' developing autonomy, help create feelings of well-being in them, and result in forms of social cohesion. Additionally, this review highlights the importance of others in the activities which adolescents experience and, in particular, adults or peers who model positive behaviour or guide them through. Published research shows that activities with an intentionally-educational purpose may more likely result in outcomes which could be described as benefiting learning, while alumni studies also found that, over time, the benefits of non-academic activities can lead to social and emotional development which endures.

The existing literature is informative but, in many cases, its relevance to the particular set of circumstances of CAS is not direct. Much of the existing research into adolescents' non-academic CAS-style activities take place as hobbies or programmes developed for particular aims and are not compulsory. CAS is a mandatory part of the International Baccalaureate Diploma Programme and so participants are motivated to engage in the activities as part of the work they need to do to achieve their Diploma (Hayden et al., 2017). Additionally, CAS is part of an international curriculum, making its context quite distinct from much of the existing research. However, it is notable that, despite being a curricular element, its content is not prescriptive. Therefore, the range and variety of experiences which participants might have make it difficult to relate closely to the existing body of research, either with a focus on alumni studies or on strand activities.

Existing literature points at some of the evidence which directs attention towards the role of the school as an influence on the way CAS is experienced by individuals, highlighting the influence of adults within those institutions, such as those with responsibilities for implementation of CAS and others who may lead activities. The status of CAS within the school will relate to the resources available to those who are guiding adolescents in making sense of the experiences. The current study, in working with IBDP alumni, affords the opportunity to address questions about how lasting its impact is perceived to be by those who participated in CAS; and, additionally, about perceptions of the extent, persistence and depth of the impact of CAS amongst alumni, in line with the research questions noted above. The methodology below outlines the research design, data collection methods and data analysis methods through which those questions will be addressed.

Methodology

As a mixed methods study, quantitative and qualitative methods are introduced at different stages of the study and with different purposes. The quantitative section takes a positivist stance to analyse a survey sample of IBDP alumni. These results influenced the design of the qualitative data collection tools: the guidelines for the focus groups, and the interview schedules. The qualitative sections adopt an interpretivist approach with small populations to engage at a deeper level than possible with the survey responses, in order to seek explanatory concepts, through methods of analysis which make explicit those assumptions and values implicit in participants' responses. Access to IBDP alumni for this purpose was obtained with support from the IB Alumni Office, as well as being sought from IBDP alumni currently studying as undergraduates at the University of Bath. The following section offers further detail about the research design and its elements.

Research design, data collection and data analysis methods

The concept of the enduring impact of CAS was researched through the perceptions of those who had experienced CAS activities: alumni of the IB Diploma Programme. The research design used a mixed methods approach combining quantitative and qualitative data and integrated analysis. Existing survey data, collected as part of the *Impact of CAS* study, was analysed to explore relationships between fixed and dependent variables to understand significant influences on the extent to which CAS participation effects can transform or endure (RQ2a). Qualitative data collected specifically for this study aimed to explore key terminology, such as transformation and enduring, in relation to CAS, and to provide insights into formative individual CAS experiences which had long-lasting impact (RQ1). Focus groups enabled exploration of a range of ideas associated with those relationships identified as significant in the quantitative analysis (Wolff, Knodel, & Sittitjai, 1993) and discussion of characteristics of CAS (RQ3). Individual interviews allowed detailed exploration of the experiences of those who identified CAS as having had an impact on them which had endured into their adulthood (RQ2b). Finally, an experimental, creative method was designed to solicit digital representations of CAS from IBDP alumni to provide a stimulus for discussion in the second wave of focus groups regarding the potential outcomes of an effective CAS programme.

The resulting data set fed into an integrative analytical approach to address all three research questions. A flexible design was considered particularly helpful for allowing qualitative data collection instruments to be designed in response to pertinent issues as they arose during the study.

Quantitative data collection and method of analysis

The potential of CAS to make an impact on participants was evident from findings which were part of the *Impact of CAS* study (Hayden et al., 2017) with surveyed alumni (n = 903). Open questions allowed alumni to identify enduring benefits from participating in CAS (Table 1).

Themes	Enduring benefits from CAS
Personal development	<ul style="list-style-type: none">• Transferrable skills• Realisation about self or potential• More open minded• Pragmatic reasons (gaining diploma)• Resilience
Well-being	<ul style="list-style-type: none">• Balanced lifestyle• Became more active• Formed good habits• Allowed hobbies to continue• Formed friendships
New Experiences	<ul style="list-style-type: none">• Had to try new things• Gained knowledge of the world
Responsibility in community	<ul style="list-style-type: none">• Sense of social responsibility• Introduced to volunteering

Table 1: Enduring benefits identified by alumni (Hayden et al., 2017)

The *Impact of CAS* survey had statements pertaining to the designed outcomes of CAS. Perceptions were recorded as strength of agreement in relation to each statement: strongly agree, slightly agree, slightly disagree, and strongly disagree. Although 70% of alumni agreed, slightly or strongly, that CAS was transformative, Hayden *et al.* (2017) found that 21.6% of the survey population slightly or strongly disagreed that CAS activities had any lasting effects. These findings from the *Impact of CAS* study provided a basis from which to engage further with the concept of lasting transformation. Analysis of the quantitative data for the current study was conducted to investigate whether there were any statistically significant relationships between perceptions of alumni about the enduring or transformative impact of CAS and factors which may have influenced that outcome.

Statements relevant to enduring impacts of CAS were identified and subject to a categorical analysis. Variable categories were included in a cross-tabulation comparison and the strength of relationship was measured between them and also fixed variables, such as gender and IB world region where the Diploma was completed. Selection of variables was based on relevance to enduring outcomes, such

as 'CAS influenced my choice of career' and responses asserting that CAS was transformative or associated with transformation, such as 'developed another perspective' or 'I learned about myself'. Further variables were selected to include perceptions of the conditions under which CAS was experienced, such as 'I enjoyed CAS' or 'I found CAS worthwhile'. The method for selecting variables and the results of the cross-tabulation tests are included in Appendix 1.

The software programme IBM SPSS Statistics 22 was used to conduct the cross-tabulation analysis of several categorical variables and the statistical significance of the relationship was calculated using Pearson's chi-square test (χ^2) on the percentages of mean responses of participants to the survey statement: across the four options on a Likert scale from strongly agree to strongly disagree. The results of the chi-square test were interpreted as indicators of the likelihood of the relationships between variables to happen by chance. Where the result was $\chi^2 \leq 0.01$, the relationship was considered to be a strongly statistically significant. When $\chi^2 \leq 0.05$, the relationship was considered less significant. When the result was greater than 0.05, it was not considered significant enough to rule out the possibility that the variables were related by chance.

Qualitative data: population

Qualitative data was collected for this study to address the question of what it is about the CAS element of the IBDP that might effect long-lasting positive change in students. Invitations to participate in the study were extended to three IB alumni groups:

- i) alumni who had completed the online survey for the Impact of CAS project and indicated interest in being contacted about further research at the University of Bath;
- ii) IBDP alumni studying as undergraduates at the University of Bath; and
- iii) the IB Alumni network, facilitated with support from staff in the IB Alumni Office.

Interested volunteers responded with their preferences to take part in a focus group, an interview and/or to send a digital representation of CAS in their lives today. Volunteers also provided information about where and when they had been awarded their Diploma, and their current location and time zone. This information was used to arrange focus groups and interviews, and a link to a secure online file storage site was set up to allow alumni to email representations of CAS.

31 participants shared their experiences, either by focus group (19) or interview (12), and had been awarded their Diploma between 2016 and 1989 (Table 2). All participants' experience of CAS predates the current requirements.

Year Diploma Awarded	Country Diploma Awarded
1989	UK
1996	U.S.A.
1997	Beijing
1998	U.S.A.
1998	Switzerland
2001	Australia
2003	Australia
2004	U.S.A.
2006	Australia
2006	Tanzania
2006	Australia
2007	Sweden
2007	Sweden
2007	Norway
2009	India
2009	Canada
2009	Bosnia & Herzegovina
2010	India
2010	UK
2010	Lithuania
2011	Australia
2011	Vietnam
2012	Switzerland
2014	U.S.A.
2015	Vietnam
2015	England
2015	UK
2016	Romania
2016	UK
2016	Jordan
2016	Oman

Table 2: Year and country of participants' Diploma award

The three IB world regions were represented in both the interviews and focus groups (Figure 1), and women outnumbered men 20 to 11 in the sample.

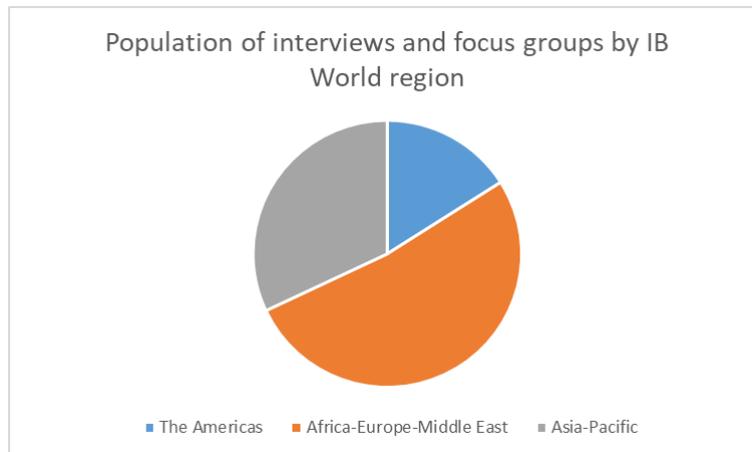


Figure 1: participants by IB World Region where Diploma was awarded

The participants were all self-selecting for this study and the DP alumni who took part in focus groups had not previously met. Further details of the qualitative data respondents, showing the countries and years in which their IBDP was awarded, can be found in Appendix 2.

Qualitative data collection: focus groups

Focus groups were designed to encourage discussion about the potential of CAS to have an enduring and transformative effect. There were two planned waves of focus groups: the first timed to follow the quantitative analysis and the second wave to come after the interviews.

The first wave focused on key areas (Knodel, 1993) in the first and third research questions: what is transformative and enduring about CAS; and what are the characteristics of an effective CAS programme. Furthermore, the focus groups allowed the opportunity to consider what 'enduring' and 'transformative' might mean in relation to CAS as well as accommodating discussion of emergent ideas. A set of focus group guidelines were developed (Appendix 3a). The guidelines were piloted with an IB alumna and an IB Diploma Coordinator, amended and streamlined prior to the first focus group.

Due to the dispersed location and busy schedules of the volunteer participants, the focus groups proved challenging to arrange within the study's time frame. For expediency, focus groups were conducted both face to face and remotely. Face-to-face meetings required participants to travel to the location of the focus group. Remote participation was possible through linking to a specially-created *url* which took participants to a Google Hangout at an appointed time. Following the link allowed participants from various locations in the world to 'meet' and talk to each other. They could see the focus group moderator, myself in each case, as well as each other. On one occasion it was necessary to conduct a 'hybrid' focus group with both physically present and remote participants.

Considerable efforts were made to accommodate the volunteers' schedules, including focus groups which began late in the evening and which went ahead despite adverse weather; despite these efforts, some people who volunteered to contribute were unable to, due to changes in work, family or travel commitments. As a result, some online focus groups were small in number, particularly for the second wave of focus groups. All focus groups proceeded when participants were available. Although discussions with individuals or pairs cannot be considered a focus group, the guidelines were followed and the contributions were included in the final stage, integrative analysis. The second wave of focus group guidelines were developed in response to analysis of the first wave focus groups and interviews and are included in Appendix 3b. Participants, in accordance with the ethical procedures (see below), consented to be digitally recorded digitally. All focus groups took up to one hour.

Qualitative data collection: interviews

The interviews were designed to address Research Questions 2 (b) and 2 (c) by collecting reflections from alumni who claimed their CAS experiences had led to enduring or transformative outcomes. In order to encourage participants to give rich accounts of their CAS experiences, some of which happened a considerable time ago, the active interviewing method (Holstein & Gubrium, 1995) was adopted. This method acknowledges that the act of interviewing someone for research is a constructed activity, designed for knowledge-production purposes, in which the researcher, by setting the agenda and designing an interview schedule, plays an active part in the process, even before the first word is uttered. In addition, it endeavours to avoid stilted or awkward exchanges that may arise in interviews due to the power differences between researchers and participants. The benefits of taking an active interview approach is that probing for more detail, asking for clarification, or pursuing emerging ideas, are all recognised as legitimate activities in pursuit of knowledge production.

The interview schedule was structured to ease participants into their recollections (Appendix 3c). It began by asking them to describe the school where they completed their Diploma, then to recall activities completed for each strand and their CAS project work. Finally, interviewees were asked to relate those experiences to their adult life. All but one interview was all conducted remotely, via Skype, and each participant gave consent to be digitally recorded. Interviews lasted up to 30 minutes each.

Ethics

Potential participants were informed from the first point of contact, that the study had been approved via the university's ethical procedures and complied with national standards set by the Economic and Social Research Council (ESRC). Alumni were free to withdraw their participation or withhold the use of their data, in total or in part, at any time during or after the study. Emails of potential participants were from three sources: a) The IB Alumni Office, who circulated information about the project

throughout their network; b) survey respondents to the *Impact of CAS* study who had agreed to further contact; and c) University of Bath undergraduates who were also IBDP alumni. All email addresses were stored on a limited access, password-protected space on the University of Bath computer network.

Transcripts were returned to participants allowing them the opportunity to contest the way they had been represented, although none did. This member checking process also proved useful for clarifying short sections of sound recording where Skype quality was poor or focus group members spoke over each other. Quoted sections of transcripts maintain the confidentiality of alumni by attributing them to the country where their Diploma was awarded, and the year of the award.

Qualitative data analysis

The qualitative analysis concentrated on enriching the themes identified in the *Impact of CAS* reports as enduring benefits: personal development, well-being, new experiences, and responsibility in the community (see Table 1 above). Although Boyatzis (1998) advocates thematic analysis for the organisation of qualitative data to allow a manageable understanding of its relation to the research questions, a finer granulation was considered more helpful to this project and so the six-phase systematic thematic analysis approach outlined by Braun and Clarke (2006) was selected. This method of analysis of qualitative data is suitable for identification of themes which make explicit, implicit meanings in the data. This is achieved by synthesising emergent codes through an iterative process of searching, reviewing and defining, into over-arching themes. In this process the place of the researcher as interpreter is made explicit. The robustness of the method lies in its exhaustive approach to generation of themes and the selection of apt excerpts from the data which can illuminate them and address the research questions.

Focus group and interview transcripts were interrogated in three ways. Firstly, the transcripts of focus groups were coded using NVivo Pro 2.0 software against categories which had been established as significant to transformative and enduring CAS experiences, as identified from the quantitative analysis (See Appendix 4). During focus group coding, it was found that there were notable differences in the dynamics when remote participants were included, caused by time lapses or interference in the connection or sound quality, and which may have affected the 'flow' of the conversation. However, this was weighed against the fact that, without the remote option, those participants would have been unable to contribute their views to the study and the findings would have drawn from a much smaller sample. This analysis provided evidence of the extent of impact.

Secondly, coding of interview transcripts was guided by existing research findings. The literature review had indicated the type of enduring outcomes that previous studies had found. These fell into

two categories; firstly pertaining to personal development, such as becoming self-confident, organised and so forth; and secondly in supporting the formation of the person which the adolescent is going to become. Although personal development is very important, there is considerable merit in concentrating on those findings which are most relevant to supporting young people in becoming active in creating a better, more peaceful world and, thus, to the central intention of an IB education.

The literature suggested the potential of activities which are strongly social in nature to improve communication and inter-personal skills (Clark et al., 2015), and identification with a group, whether intercultural (Seifert et al., 2008) or intergenerational (Lindemann, 2012; Rynne, 2016). Given the important role of the school in facilitating CAS activities (Hayden *et al.*, 2017), research suggesting the role of the extra-curricular sport activities in enhancing attachment to the school (Moilanen et al., 2014) led to social connectivity as one code. The enduring, positive effects of a liberal arts education in the United States (Pascarella et al., 2005) and social-cause service (Webber, 2011) included adolescents developing a sense of civic responsibility and a sense of purpose through volunteering which lasted. This generated a second code and third code. Finally, and pertinent to the current study, a key finding from Lindemann's (2012) research on IBDP alumni in Brazil is how Service helped transform students' view of their own role in the world. The analysis used four codes to identify enduring outcomes that:

- Enhanced social connectivity
- Developed a sense of civic responsibility – though the scope of this could extend beyond the city
- Fostered a sense of purpose
- Transformed existing views of self in the world

In this way, some understanding of persistence and depth of the impact of CAS could be ascertained. Coding, focused initially on the following interview questions, was then broadened to include examples from within the whole narrative, when relevant:

- How does CAS relate to your life activities since leaving school?
- Can you describe any stand out experiences you had in CAS?

This approach generated categories which were refined and taken back to the data to identify extracts to serve as illustrative examples, following the Braun & Clarke (2006) 6-stage method of thematic analysis. Finally, cross-comparison of data sources was possible whilst performing the two coding

exercises. Coding and comparison were integrated to focus on the transformations alumni perceived CAS to have brought and endured beyond school days.

Findings

The research was designed to address three central research questions as follows:

- RQ1. *What aspects of CAS do alumni identify in relation to enduring impact?*
- RQ2. *Under what conditions can CAS be a transformative experience:*
 - a) *across a large population?*
 - b) *in ways which are deep and persistent?*
- RQ3. *What are the characteristics of a CAS programme which achieves enduring impact?*

In summary, it was found that activities which change students' perspectives were identified as leading to lasting impact. Across a large population, CAS activities that engaged and were valued by students and were supported by adults, were significantly related to these activities continuing after students left school. Long-lasting and profound personal changes arose when CAS activities involved opportunities to do important work with others. And, finally, this can be achieved through CAS programmes which support the development of students' social responsibility and sense of their own potential. The findings are presented to correspond to the three main research questions.

Perspective-changing activities have enduring impact

Focus groups discussions gave rise to data rich with many individual examples, from which integrative analysis generated categories. Part of the first set of focus groups' discussions considered commonalities and differences of opinion as to how CAS affected participants' lives. The discussions required the groups to reach a consensus about which aspects of CAS might endure after leaving school from which it was clear that experiences can change the way students see themselves or the world are particularly powerful. In fact, this is a theme which runs throughout the findings, giving a strong foundation for claiming that this is a key finding. Changes of perspective were understood as being prompted in many different circumstances. As an example, one alumni explained how a trip to an orphanage as part of a CAS project showed him a side to his own country which, until then, he did not know:

“I remember seeing how much we were like them. And looking at them and remembering, “when I was their age I was the exact same” ...and starting to reflect about the idea that you don't choose in what social context and what family you're born...It was just maybe random, or a coincidence that I was the one visiting and bringing them clothes and toys and playing

with them... it certainly opened my eyes and gave me a different perspective on life.”

(Romania, 2016)

Meeting the children in the orphanage transformed his understanding of his own place in the world; seeing himself as, so to speak, fortunate by chance. In contrast to short-term CAS activities, visits, or trips, focus groups connected lasting outcomes to the individual with long-lasting CAS activities, including the CAS project. These were the types of activities which were sustained over time and were perceived to engage students, longer-term, in CAS activities. Examples included schools working with long-standing partner organisations, commitments to local charity which successive student cohorts contributed to, or students engaging in legacy activities which would bring lasting benefits:

“[planting] trees in the parks where we would later go and it was great being able to contribute something and to use the knowledge we’d gained...[it was a] small difference, but it made us feel valuable, that we were part of the society, that we were really contributing at a young age.”

(Bosnia and Herzegovina, 2009)

The transformation brought about by the brief activity of tree planting was accompanied by this alumna’s transformed sense of her lasting contribution to her society which would last as long as the trees. This exemplifies how engaging students in important activities have the potential to lead to transforming the student’s view of themselves in the world. The focus groups also related lasting changes of perspective to students seeing how the efforts put into their CAS activities led to clear benefits. The previous example shows the alumna’s realisation of the benefits to her local community from planting trees, but ‘benefits’ can also be understood in more complex ways. One alumna gave an example showing how a CAS activity which introduced her to teaching children in need had a lasting impact on her career direction:

“When I did CAS in India, they encouraged us to teach underprivileged children, and I think I’ve taken that on with me and I’ve actually created a business out of that, at the moment, where I’m teaching children that are doing their GCSEs, so the element of caring, and compassion, creativity, has all encompassed in one in what I’m actually doing now.”

(India, 2010)

The experience changed her perspective of herself and what she could do in the world. She discovered qualities of caring and compassion which evolved to become an influence on her career. For CAS activities to lead to a change of perspective, the student has to be more than superficially engaged. The focus group data showed that engagement stems from students’ motivation, which short-term CAS experiences may struggle to support. School-organised CAS trips, often abroad, often to meet

people living in poverty, raise a more serious issue than lack of student engagement. With reference to a trip from the UK to Tanzania one alumna conveys her discomfort with some aspects of this kind of experience where students are taken to very different environments:

"it is amazing that you get to meet all these children and meet all these people, but you're... helping [Tanzanian] children for a week and bringing smiles to their faces for a week and then you leave, it's just, I think there's something problematic with that."

(United Kingdom, 2016)

This alumna touches on difficulties arising when transformative experiences are simply equated with taking students to see how other people live. Some visits make a lasting impact on some people (Romania, 2016; Bosnia and Herzegovina, 2009) but when participating in a week-long trip far from their school, it is difficult to be sure that students will be deeply engaged.

Alumni, therefore, identified enduring impact in relation to CAS perspective-changing activities. These were activities which supported transformation of the way individual students understood themselves, how they related to the world, or even extended to changing their perception about society more widely. However, CAS activities designed to take students 'out of their comfort zone' or to meet people they would not normally have met, may not be enough for CAS to have an enduring impact on students. The implications for implementation of CAS are discussed in relation to findings addressing the third research question. The next section presents findings about the conditions under which CAS can be a transformative experience.

When CAS is a transformative experience

The second research question was addressed by two means. Firstly, data from a large alumni population was tested to understand to what extent CAS experiences might generally be related to significant and lasting change to students. Then, through comparative thematic analysis of individual perceptions, conditions were identified where the changes effected by participation in CAS were deep and lasting. These aspects are treated in the following two sections, presenting the evidence for extent of change, before attending to depth and persistence of change.

Engagement, value and support

Categorical analysis compared strength of agreement amongst survey respondents (n = 903) to a selection of statements which were considered to reflect outcomes of CAS which were enduring or transformative. Table 2 shows the results of chi-square tests which were statistically significant. The full set of tests and results are included in Appendix 1.

Test #	CAS outcome	Variable Categories	X ² /significant?
1	CAS influenced my career choices	Enjoyed CAS	.000 YES
		Parental support	.000 YES
2	I am still doing Creative activities	Enjoyed CAS	.000 YES
		Parental support	.001 YES
3	I am still doing Action	Enjoyed CAS	.000 YES
		Parental support	.000 YES
4	I am still doing Service	Enjoyed CAS	.000 YES
		Parental support	.000 YES
5	CAS was transformative	Enjoyed CAS	.000 YES
		Supportive CAS staff	.000 YES
		Parental support	.000 YES
6	CAS was transformative	Found CAS difficult	.000 YES
		Challenging but rewarding	.000 YES
		Worthwhile	.000 YES
11	CAS was transformative Learned about self Learned about others Developed International Mindedness Developed responsibility to other people/the environment Tried new things Developed other perspective	Challenging but rewarding	ALL .000 YES

Table 3: Significant influences on enduring and transformative CAS outcomes

(i) Enduring outcomes of CAS

Tests 1-4 showed that continuation of CAS activities, and CAS which influenced career choices were found to be significantly related to enjoyment of the activities and parental support.

(ii) Transformation through participation in CAS

Tests 5 and 6 show that the survey responses to the statement 'CAS was a transformative experience' were also significantly related to enjoyment and parental support. However supportive CAS staff were also significant to transformational CAS experience suggesting the importance of adults in guiding adolescents through experiences which are transformative. Test 6 also shows that CAS can be difficult, challenging but rewarding and worthwhile, and still be considered transformative.

Test 11 shows that statements related to transformation were only found to be significantly related to a CAS experience which was perceived to be challenging and rewarding.

The results of the categorical analysis of relationships between variables showed that, across a large population, enjoyment and support from parents are significantly related to continuation of activities

after school and of influencing the careers of alumni. Enjoyment was also found to be significantly related to transformative CAS experiences, as was support from staff implementing CAS. However, it is interesting to note that transformation is related to perceptions that CAS is worthwhile, challenging but rewarding, or even difficult.

Engaging students is key to CAS being a lasting transformative experience. As well as being enjoyable, CAS can be valued, feel rewarding, and even be challenging or difficult. Supportive parents or teachers are also significant influences on the outcomes of CAS leading to enduring transformation. It can be concluded that CAS activities are more likely to lead to lasting transformations if they engage students, are valued by students, and if students are supported by adults.

Important work with others

Findings so far emphasise the importance of activities which change students' perspectives. The literature review showed that lasting effects of non-academic, CAS-like activities can persist in ways which enhance the sense of social connectedness of the participants. Therefore, experiences which lead to deep and persisting transformation are related to the following conditions:

- a sense of social responsibility
- a transformed perspective

These conditions were used to code the interview transcripts, testing whether these conditions applied to IBDP alumni who considered CAS to have made a lasting impact on them. What examples were there of how social responsibility was fostered and persisted into later life? And what kind of transformation endured? There were two particularly relevant interview questions:

i) How does CAS relate to your life activities since leaving school? (persistence)

The question was framed quite openly, to accommodate meaningful interpretations, and asked about 'CAS' rather than specific strands. The second interview question was:

ii) Can you describe any stand out experiences you had in CAS? (depth)

The invitation to describe stand-out experiences worked on the assumption that lasting impact stemmed from experiences which made a memorable impression. In this way, some understanding of persistence and depth of impact from CAS experiences was gained. The active interviewing method (Holstein & Gubrium, 1995) allowed for flexibility to pursue alternative lines of questioning if this was not the case. The coding focused initially on interview questions four and five then broadened to include examples from within the whole narrative which were relevant. This process identified three

aspects which transformed: their sense of social responsibility, their perspective of themselves in relation to others, and the sense of their own potential.

Interviewees repeatedly gave examples of ways in which their CAS experiences had developed in them a sense of social responsibility, whether at a local level or with global reach, upon which they continued to act after they left school.

After having completed his Diploma in Africa, and now living in North America, this alumnus explained how CAS began a decade-long involvement with a children's home.

“Some of the kids we were teaching at that children’s home, they've grown up and started their own lives, so a number that we saw basically have done secondary school, finished secondary school, got a vocational training and do a trade, and became independent...by keeping in touch with them...you can see... the impact, you can see those children go out and have a life afterwards. It's been ten years, but I've been able to keep up with the children throughout every stage.”

(Tanzania, 2006)

This example illustrates how a sense of social responsibility begun in adolescence can develop into a long-lasting involvement. There were many clear examples of ways in which interviewees linked their school experiences to on-going social involvement, which include:

- CAS Amnesty International club involvement continued participation into adulthood, resulting in chairing local area group (Sweden, 2007)
- CAS trip to Honduras led to activist approach in a Master's degree on marginalised communities and leading changes in the local community through involvement with girl guides (Canada, 2009)
- CAS stimulated passion in humanitarian issues and led to working as a teacher of migrant children on the other side of the world (United States, 2004)
- CAS project with UNICEF led to a career in paediatric immunology (Beijing, 1997)

CAS experiences introduced students, often through Service or the CAS project, to develop a sense of social responsibility which persisted after leaving school. This was the first of the three types of transformation which emerged. CAS experiences also prompted transformations in the way alumni remember seeing themselves in relation to others in the world. For some this was expressed in relation to personal realisations, including:

- CAS experiences challenged stereotypes (Australia, 2006)
- CAS helped in 'seeing' other people (United States, 1996)

For others it changed the way they viewed themselves and their capabilities, starting in school and persisting into adult life:

- CAS "lets you know you *can*" (Switzerland, 1998)
- "understanding that if we weren't going to do it, no one else was" (United Kingdom, 1989)

These examples show how the activities made an impact on the sense of their own potential, and was something which could be seen in examples where CAS activities involved relationships with others. Visiting elderly people in the holidays as part of her CAS requirements became an experience which prompted deep reflections from one alumna about how it affected her as an adolescent and transformed her sense of social responsibility to the extent that she continues to do this kind of voluntary work today.

"I think that it helps in the maturing process, but I think that it also helps in thinking about doing things not just for oneself." (United States, 2004)

This reflection marks out the potential of CAS to support profound and persistent transformation that can come through giving an adolescent the opportunity to do important work with others.

Service activities are hugely influential in bringing about deep and lasting transformations, although that is not to say that interviewees spoke exclusively about this strand. An interesting take on transformation of perspective was that explained by a technically-minded alumnus who, when searching for something to fulfil his Creativity requirement, chose photography. In his job as a serving military officer, he now takes his camera everywhere, and described it as helping him connect to people from very different backgrounds. He reflected on a photograph he took of a Peruvian man:

"You start to dive in to who they are as people. You're able to get past any preconceptions of what somebody is" (United States, 1996)

The digital files which were alumni sent to represent CAS in their adult life also showed examples of lasting transformation. They showed painting, acting, music-making, and exercise habits begun with CAS and continued today. One person sent a video clip of down-hill skiing, an activity he had started for CAS, continued after leaving school, and led to him meeting the woman who became his wife.

This section presents findings about the conditions under which CAS can lead to transformation, showing how changing students' perspectives, giving them social responsibility and a sense of their

own potential can support transformations which are deep and also persistent. When synthesised with the quantitative findings in the previous section, it can be concluded that these profound changes arise when adolescents are given the opportunity to engage in important work with others.

The final section presents some of the characteristics of a CAS programme which might support these opportunities.

Characteristics of a CAS programme that achieves enduring benefits to participants

The findings so far have implications for the way CAS is implemented in schools. Part of the data gathered invited focus group participants to discuss the 'ingredients' of an effective CAS programme, or describe CAS at its best. Analysis of these descriptions give insights into how students can be supported to gain new perspectives, a sense of social responsibility, and a sense of their own potential.

Activities that change students' perspectives

It was noted above, when one alumna expressed concerns about superficial CAS experiences in relation to a week's visit to Tanzanian children, that there is a question about whether new experiences are all that are needed to spark lasting change in students. Transformation was found to relate to engagement with and perceived value of the activities, which has implications about the way CAS is understood. The meaning of CAS, then, become important, as this alumnus notes:

"It should mean something to the individual, it should change the individual, it shouldn't just be a case of you need to get your 4 hours. It should be, how is this 4 hours going to change your life?" (United States, 2014)

These remarks suggest that CAS activities must intentionally set out to change students' lives in ways which are personally meaningful to each student. A one-size-fits-all approach may, therefore, limit the extent to which CAS can be meaningful in a way which engages students. There are implications here for the way schools implement CAS, particularly regarding the resources which are available to do so. Considering that engagement, value and support from adults were found to be significant factors across a broad population, schools which would like CAS to meet its aims may wish to consider whether the programme's organisation is agile enough to identify activities which are meaningful to individual students and can allocate resources to support them in fulfilling them.

Activities that give students social responsibility

According to the *Impact of CAS* report, Model United Nations (MUN) was one activity which was reported as a popular activity for CAS. Its relevance to international and citizenship education can support the development of social responsibility. One alumnus, interviewed for this study, said his

participation in MUN led to him running for student government in university and developed his sense of his responsibility not just as a national, but as a global citizen:

"The Model United Nations programme was instrumental in expanding my knowledge about my role as a global citizen. I can't stress enough how important that MUN programme was. It was the MUN, which then led me to the CAS project in international organizations like in the UN organizations, which then changed me" (Beijing, 1997)

Responsibility that connects to others was particularly potent in creating lasting effects. One alumnus explained how a Service experience with Habitat for Humanity transformed for ever the way he understood himself in relation to the world:

"I work in the development industry as an advisor and as an analyst and I think at the heart of that industry is a desire to really improve the communities that we live in and contribute and be a productive part of those communities. I think that is really the spirit behind the CAS programme as well." (India, 2009)

There is a reciprocity implicit in this statement which directs the efforts of the individual towards benefits to the wider community and, in becoming so involved, supports a developing realisation of his own potential.

Activities that give students a new sense of their potential

An often-used phrase amongst alumni is that CAS took them *out of their comfort zone*. This seems to be associated with experiences which put them into a situation where they find they can do things they did not previously know they could. This can have lasting changes on individuals' attributes:

"I volunteered with younger kids during their break hours. I was given the task to entertain them, come up with games, for example during their break hours. It was fun but exhausting having to deal with kids. It definitely made me more patient, that's for sure." (Jordan, 2016)

While CAS is part of a programme which aims to develop individual attributes, there is evidence that students can develop a sense of potential which becomes fundamental to the way they tackle life:

"The element of CAS making you delve into things that you've never done before, that has encouraged me to take on challenges that I wouldn't have ever done without having done CAS basically." (India, 2010)

This alumna, referring to the way her experience of teaching gained through CAS led eventually to her setting up her own business in this field, gave her a sense of her own potential. If CAS is to be effective,

students can be encouraged to find ways in which their contributions can lead to change. One alumna suggests that this can be connected to existing passions:

"if you love football then why don't you focus on football and maybe starting a new camp for children, which they could take part in...something that you could make an impact in, something that interests you, for the Service aspect I think that's very valuable, to focus on what you are interested in and then trying to make a difference in that"

(United Kingdom, 2016)

This contribution challenges the idea that CAS activities must be novel to effect change in students. When an existing activity or hobby is carried on for CAS, as it is for many students, and particularly for Creativity or Activity, its potential to prompt lasting change lies in how students perceive its value and in how they understand the potential they have to make changes in the wider world.

Characteristics of a CAS programme which supports students to become active in making the world a better place require an approach to implementation which enables them to gain new perspectives, develop a sense of social responsibility and give them a sense of their own potential. How this is to be arranged will depend on students' engagement with the activities, whether that relates to their enjoyment of them, or how much they find them rewarding, challenging, or even difficult. The role of adults in mediating the value of the activities is also important, as are opportunities to engage in important work with others. The findings of this study suggest that, whatever the context in which CAS requirements are fulfilled, there is much to be gained from ensuring that individual students' activities are ones which have the potential to transform their sense of themselves as actors in the world.

Discussion

The findings of this study point to the importance of schools taking an intentional approach to the arrangement of CAS activities: an approach that builds in transformational experiences which are connected to social responsibility. Giving IBDP students the opportunity to do important work with others as part of their CAS experiences has been shown to have had an impact on those alumni who identify CAS as having led to profound change lasting into their adult life. This process is closely connected to the value CAS is perceived to have. Schools can mediate students' interpretations of CAS if, for example, CAS is well-established within the school community (Martin et al., 2016) or if a dialogical pedagogy is adopted in which teachers and students work closely together (Wasner, 2016). Wasner's argument is particularly convincing in light of the findings from the literature review and the

quantitative analysis which suggest that adults can play a key role in guiding students in this age-group through transformative experiences.

Students' engagement with CAS will bear upon the personal feelings students invest in it, which is a particularly important consideration when students take part in activities that involve others. This was noted when Service activities might bring students into connection with others, as found by a study about visits to elderly people as part of Service (Lindemann, 2012). Lindemann's findings are supported by examples of alumni in the current study who were still very affected by their memories of the elderly people they spent time with as part of CAS. Thought needs to be given to the possible long-term effects on all those involved. However, this may not be easily predicted. One of the interviewees recounted an experience undertaken as part of Service for CAS which illustrates the complexity of acts of giving:

"We were all in fancy dress for this ceremony, they had us go out into the community into some of the poorest neighbourhoods and deliver holiday baskets. And it was just really awkward. To be blunt, it was a bunch of white kids rolling into an all-black neighbourhood like here, have some charity! It was extremely awkward. So that was kind of one of those things about wow, you learn about maybe meeting people where they are and not trying to be the benevolent great white hope and all of that. It was kind of the reverse lesson I think [the CAS Coordinator] was going for, but it was pretty formative." (United States, 1998)

"Meeting people where they are" speaks of the potential that CAS experiences have to create bridges between people from different social backgrounds, also expressed as reducing distance:

"to understand where people come from" (Australia, 2006)

"there wasn't a distance between the two of us" (Jordan, 2016)

The action of bridging gaps between people has relevance to the development of international mindedness when conceptualised as a process of reaching-out and reaching-in (Barratt Hacking et al., 2016). CAS has the potential to contribute to the recognition of oneself in relation to others. However, for CAS to be effective, it not only has to make an impact on students in ways which develop their view of the world, or themselves in it; it needs to be translated into action. The experience-based CAS is part of a programme which has a mission to develop international mindedness in an effort to support students to create a better, more peaceful world. The above story about the food baskets continues to illustrate how reaching out can contribute to profound transformation:

"[It] gave us a check on our privilege before that was even a concept that we could articulate. That's not something that was talked about in the 90s, checking your privilege,

but it...[taught] us not to think of community service as benevolent charity and more about actually finding things that help the people you want to help in the way they need to be helped rather than tossing coins at them as they pass or whatever."

(United States, 1998)

Through the moment of awkwardness, this alumna transformed her understanding of her own status and led her to a new connection with others, understanding something quite profound in her expression "in the way they need to be helped". She explained that this was the experience which led to her continuing voluntary work which specifically aims to empower the disempowered.

Many examples in this study arose through Service activities as part of CAS, although existing research suggests that Service has the greatest effect on people aged up to 14 (Billig, 2004; Gupta & Thapliyal, 2015; Scales et al., 2000). The impact of Service on older adolescents would therefore be an area recommended for future investigation.

Conclusion

This study has identified, through contributions from alumni of the IB Diploma programme, that CAS has the potential to effect profound and lasting change on students when they are engaged with CAS activities, whether this is through enjoyment, feeling that it is rewarding, or even that it is challenging or difficult for them. Giving adolescents the opportunity to do important work with others has the potential to facilitate these transformative and lasting experiences.

Arising from such activities students can experience a change of perspective along with a sense of social responsibility and their own potential to influence the way things happen in the world:

"it gives this, kind of a different point of view... you cannot ever again see the world as you did before. You always...have that same thought at the back of your mind, that you have to look at it from two different perspectives and you have to think about what you're doing, you have to be conscious how you are affecting climate change... whether the way you are doing things is sustainable...and whether it's going to impact the lives of other people."

(Lithuania, 2010)

The characteristics of a programme which achieves lasting benefits to students can be implemented in ways which intentionally seek to extend the impact of activities to others, and shape students to see themselves as responsible for remaining active and involved citizens throughout their lives.

"when you're an international, it's not your society, right?... 'I'm temporary, I'm passing.'
[but] even if I'm passing, in *this* moment I'm in *this* community, and I should find a way to
get involved with it" (Tanzania, 2006)

Wherever IBDP alumni may find themselves in their adult lives, it is clear that the enduring impact of CAS is more than just creating a store of happy memories. CAS activities have the potential to make lasting changes in IBDP alumni and in the world in which they live.

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Appendix 1: Quantitative analysis tests

The cross-tabulation queries run on SPSS are recorded here in full. Results of the chi-square tests indicating significance of the relationship are shown in the final column. Shaded rows highlight those relationships identified as statistically significant; lighter grey indicates strongly significant, while darker grey indicates a significant relationship but one which is not as strong as those in the light grey rows. Where results of the chi-square test were greater than 0.05, there was no statistical significance and rows are left white.

Test	CAS outcome	Variable Categories	χ^2 /significant?
1	CAS influenced my career choices	Enjoyed CAS	.000 YES
		Supportive CASCo	.034 YES but less than enjoyment or parental support
		Parental support	.000 YES
2	I am still doing Creative activities	Enjoyed CAS	.000 YES
		Supportive CASCo	.026 YES but less than other 2
		Parental support	.001 YES
3	I am still doing Action	Enjoyed CAS	.000 YES
		Supportive CASCo	.125 NO
		Parental support	.000 YES
4	I am still doing Service	Enjoyed CAS	.000 YES
		Supportive CASCo	.019 YES but less than other 2 strands
		Parental support	.000 YES
5	CAS was transformative	Enjoyed CAS	.000 YES
		Supportive CASCo	.000 YES
		Parental support	.000 YES
6	CAS was transformative	Found CAS difficult	.000 YES
		Challenging but rewarding	.000 YES
		Worthwhile	.000 YES
7	CAS influenced my career	CAS was difficult	.065 NO
8	I still do Creative activities	CAS was difficult	.614 NO
9	I still do Action	CAS was difficult	.489 NO
10	I still do Service	CAS was difficult	.166 NO
11	CAS was transformative Learned about self Learned about others Developed International Mindedness Developed responsibility to other people/the environment Tried new things Developed other perspective	challenging but rewarding	ALL .000 YES
12	CAS was transformative	Did PYP/MYP	.389 NO
13	CAS was transformative	Related to gender [M/F]	.058 NO

Appendix 2: Qualitative data population

Name	FG/Int	M/F	Graduated with IBDP	Graduated from a school in...	IB Region
P1	FG	F	2011	Australia	AP
P2	FG	F	2010	India	AP
P3	FG	F	2012	Switzerland	AEM
P4	FG	F	2015	Vietnam	AP
P5	FG	M	2014	U.S.A.	AA
P6	FG	M	2015	U.K.	AEM
P7	FG	F	2011	Vietnam	AP
P8	FG	F	2007	Sweden	AEM
P9	FG	F	2009	Bosnia & Herzegovina	AEM
P10	FG	M	2007	Norway	AEM
P11	FG	M	2010	U.K.	AEM
P12	FG	M	2016	Romania	AEM
P13	FG	F	2016	England	AEM
P14	FG	M	2003	Australia	AP
P15	FG	F	2001	Australia	AP
P16	FG	F	2015	U.K.	AEM
P17	FG	F	2016	Jordan	AEM
P18	FG	F	2006	Australia	AP
P19	FG	F	2010	Lithuania	AEM
P20	Int	M	2009	India	AP
P21	Int	F	1998	U.S.A.	AA
P22	Int	M	1997	Beijing	AP
P23	Int	F	2007	Sweden	AEM
P24	Int	M	1996	U.S.A.	AA
P25	Int	F	2006	Australia	AP
P26	Int	M	1998	Switzerland	AEM
P27	Int	F	2009	Canada	AA
P28	Int	F	2004	U.S.A.	AA
P29	Int	M	2006	Tanzania	AEM
P30	Int	F	2016	Jordan	AEM
P31	Int	F	1989	U.K.	AEM

KEY:

FG = focus group participant

Int = interviewee

AA = The Americas

AEM = Africa, Europe, Middle East

AP = Asia Pacific

Appendix 3a: Focus Group (1) guidelines

1st wave Focus Groups - Guidelines

ETHICS & process of recording, transcribing and checking.

Discussing the aims of CAS in relation to the IB Mission as being experiences which make an impact that is a) lasting and b) transformative, both to the individual and ultimately their way of acting in the world. Genuinely interested in researching enduring impact.

Rules of conduct [respecting the variety of views emerging; giving full attention and thought to tasks; giving way regularly to share the talk; encouraging others to speak; maintaining good humour and kindness throughout]

BEGIN

a) How might CAS relate to the IB mission statement?

TASK: Look at a copy of the IB Mission statement.

Do any parts of it relate to CAS?

b) What transformative and/or lasting outcomes might a CAS programme have?

[have ones from survey on standby]

TASK: Discuss what you/people can get out of participating in effective CAS.

If CAS is effective how might it *transform*?

How might transformations *endure*?

Which sort of outcomes are likely to make an impact that transform or endure?

- SM Write thoughts on large sheet (for cross-group comparison)/ OR digital doc?

c) How can CAS activities support development of transformative/enduring outcomes?

TASK: Introduce the *Transformative-CAS Cake*

What ingredients would you put in it?

Write on post-its/ digital doc [London – implementation]

(have stand-by egs from quant analysis: CAS is difficult, parental support, enjoyment)

- Which are the most important?

d) What are the characteristics of a CAS programme which transforms or endures?

TASK: Making vignettes of/recipe for CAS which transforms and endures

Imagine you have to design a really successful CAS programme for a school.

What must be in it? What can't be in it?

- Group writes/draws final representation of elements in an effective CAS experience

Appendix 3(b): Interview schedule

Aim: to get an account of how your life today is related to your CAS experiences during the DP.

- Tell me a little about where you did the DP.

- How do you remember feeling about having to do CAS?

- How did you feel about doing each strand:
 - Creativity?
 - Action?
 - Service?

- Can you describe any stand-out experiences you had?

- How does CAS relate to your life activities since leaving school?

Summarise & anything to add?

Appendix 3(c): Focus group (2) guidelines

Group members must expect a variety of views to emerge in discussion and respect differences of opinion by giving way regularly to share the talk, encouraging others to speak and maintaining good humour and kindness throughout.

Aim – discuss your experiences of CAS then broaden to consider its aim and its potential

1. Introductions – tell us as much, or as little, about your DP and your school as you like.

2. What did you do for Creativity? Activity? Service?

And

How did you end up doing those things?

3. How were the CAS experiences for others in your cohort?

4. When CAS is at its best. For some CAS was transformative, and lasting...some alumni sent me pictures of CAS in their lives today which we can look at together:

[watch slideshow]

It worked for them – what potential does CAS have to make a lasting transformation in DP students?

5. How do you think of CAS now, as an adult? What did it do for you?

6. Why is CAS in the DP - what do you think its aim is?

7. Further discussion – open to participants

Appendix 4: NVivo queries

Method of defining the key terms for coding first wave focus groups

The literature review indicated that other people were important in experiential learning, including peers and friends, but also adults, such as teachers, in providing guidance in transformative experiences. Studies have also shown that the availability of resources is important. Outcomes categorised as transformative from the literature were autonomy, independence, and well-being.

Quantitative analysis of the *Impact of CAS* online survey data yielded by alumni (n = 903) indicated that enduring outcomes had a strongly significant association with enjoyment and fun during the CAS activities. The quantitative analysis found that the strongest associations for transformative outcomes were connected to perceptions of the value of the activities: alumni reported CAS as transformative when they regarded CAS, not only as enjoyable, but also as worthwhile, challenging but rewarding or even difficult. Echoing the findings in existing literature, support from others, particularly parents, contributed to alumni perceiving CAS as transformative.

The Braun and Clarke (2006) process of thematic analysis requires, as the first stage, the analyst to familiarise themselves with the data, in this case the transcripts. During this familiarisation process, I noted down key words which seemed recurrent in the transcripts.

Together these three sources contributed to a set of terms which could be used to run queries of the transcripts. These are listed in the table below.

Query #	term	conditions	Notes
1	enjoy~	Text search to second level sensitivity	Connected with endure; cones from Quant An Initial (10 th Jan) nodes established for this key are: enjoyment as exploration, key to CAS, not linked with transformation, linked with transformation, superficial, linked to implementation [unenjoyable experiences were not initially coded]
2	fun	Text search to second level sensitivity	new nodes added: enjoyment linked with social/others; and with learning
3	lasting	Text search to second level sensitivity	Results showed my questions and references to 'last' Return to look at sections of the transcripts where this idea was explicitly discussed
4	endur~	Text search	"
5	reward~	Text search	No results
6	worthwhile	"	"
7	difficult	Text search	Added nodes about difficult to meet requirements; and new challenges
8	challenge	Text search to fourth level sensitivity	Added nodes about challenge of making CAS meaningful
9	change	Text search to third level sensitivity	Added: change as the aim; change attributed to experiences; change linked to sense of achievement

10	different	Text search to second level sensitivity	Added: CAS broadens experience; can deepen existing interests; can develop whole person; gives new perspective
11	value	Text search to second level sensitivity	No new added
12	support	Text search to second level sensitivity	No new added
13	teacher	Text search to second level sensitivity	Added superficial CAS; CAS stress
14	learn	Text search to second level sensitivity	Added 'Learning'
15	friend	Text search to second level sensitivity	Changed 'enjoyment not linked with endure' to 'CAS not linked with endure'
16	guid~	Text search	No new added
17	perspective	Text search to second level sensitivity	No finds in London FG No new added
18	purpose	Text search to second level sensitivity	No new added
19	autonomy	Text search to second level sensitivity	No finds
20	independent	Text search to second level sensitivity	No new added
21	well-being	Text search to second level sensitivity	No finds
22	social	Text search to second level sensitivity	No new added
23	adult	Text search to second level sensitivity	No finds
24	peer	Text search to second level sensitivity	No new added
25	advisor	Text search to second level sensitivity	No new added
26	Coordinator	Text search to second level sensitivity	No new added

27	motivation	Text search to second level sensitivity	Added: CAS unimportant
28	emotion	Text search to second level sensitivity	No finds
29	resources	Text search to second level sensitivity	Added: Flexible CAS Also sparked thoughts about the impact of the process of finding activities for CAS – this process could shed light on schools' attitudes towards CAS, its purpose, its relative importance as well as encompassing practical implication issues (such as how much time is given to it; whether the school is well-resourced for CAS) and pedagogical practices, Is there are relation between the two? Does the way CAS activities are decided have any bearing on their impact? Maybe this is important to include in FG2nd Wave How did you choose your CAS activities?
30	learn	Text search to second level sensitivity	This search revealed that there were CAS experiences which influenced the way CAS was experienced and then of course the outcomes – and potential of CAS to be enduring/transformational
31	balance	Text search to second level sensitivity	No new added
32	well-rounded	Text search to second level sensitivity	No new added
33	others	Text search to second level sensitivity	No new added
34	different	Text search to second level sensitivity	biggest return so far: 16/22/27 finds in transcripts Added 'Staff are key to CAS'; they are the ones who can make a difference and added: Intentional transformation Student independence or agency
35	potential	Text search to second level sensitivity	No new added – also, mostly used by moderator
36	meaning	Text search to second level sensitivity	No new added
37	meaningful	Text search to second level sensitivity	No new added
38	significant	Text search to second level sensitivity	No new added

39	variety	Text search to second level sensitivity	No new added
40	reflections	Text search to second level sensitivity	No new added
41	knowledge	Text search to second level sensitivity	No new added

[END OF APPENDICES]