

Part-time work and non-school activities while in high school: Is there a threshold effect on achievement?¹

**KIRSTY WEIR, LUANNA H. MEYER,
JOHN MCCLURE AND DAMIAN O'NEILL**

Abstract

Student involvement in extracurricular activities including sport and part-time work is considered to have an influence on achievement, yet there are conflicting views on whether the effect is negative or positive. Data were collected from 2,257 secondary students to investigate the relationship of different participation patterns with grade averages. Results reveal higher grades for students reporting 5-20 hours of total extracurricular activities including part-time work. In contrast, fewer than 5 and more than 20 hours weekly spent in combined extracurricular activities were associated with lower achievement. Implications for educators and parents are discussed.

How well students achieve in secondary school and what they learn is the product of a complex dynamic influenced by student characteristics such as prior learning, well-being, intellectual capacity, motivation, and intrapersonal attitudes and beliefs about achievement. Secondary school achievement is also influenced by interpersonal and other factors including the school environment, teaching practices, family environment, the wider

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educational and political environment, and community opportunities outside school. The extent to which students participate in extracurricular activities is another factor that appears to be related to achievement outcomes, with considerable debate as to whether the influence of such activities is positive or negative. Using part-time work as an example, there is some evidence that participating in part-time work while in secondary school may be character-building and assist in the development of time management and other life skills required for adult roles (Holland & Andre 1987; Mihalic & Elliot 1997). Conversely, part-time work has also been viewed as detrimental to student achievement and a distraction that reduces time available for school and schoolwork (Greenberger & Steinberg 1986; Marsh 1992; Warren 2002).

The debate is ongoing: recently, Patton and Smith (2010) concluded that the literature was “inconsistent and incomplete” (p. 60) and advocated further research to understand the effect of part-time work on student outcomes. One issue may be variability in the extent to which studies address the wider context of students’ participation in a range of extracurricular activities. Studies have typically examined the impact of extracurricular activities primarily by isolating the effect of a single activity on educational achievement or employment outcomes. In practice, many students engage in a wide range of extracurricular activities at any one time during secondary school (Meyer, McClure, Walkey, McKenzie, & Weir 2006). Thus, research that examines the impact of only one type of activity may provide an incomplete picture of the impact of extracurricular activities on academic achievement. Examining only the amount of time spent in each single activity ignores the combined influences of multiple activities as well as the possibility that different activities may show different relationships with outcomes. In their comprehensive review of the relationship of organized activity to youth development, Bohnert, Fredricks, and Randall (2010) emphasize that existing research reveals critical methodological flaws resulting in inadequate detail about the nature of activity involvement. They recommend that studies report dimensions such as breadth (the range of activities) as well as intensity (amount of activities), duration (involvement over time), and engagement

(behavioural, emotional, and cognitive) in order to identify how extracurricular activities affect young people.

Level of participation in part-time work

In the U.K., 28% of 16-17 year olds are engaging in part-time work while in full-time education (Dustmann & Van Soest, 2007). In the USA, Rothstein (2001) found that students are working approximately 18 hours in a part-time job, and in Australia, students work between 10 and 20 hours per week in paid employment (Smith & Green, 2005). In New Zealand also, part-time work is common, with approximately 40% of secondary students engaged in regular part-time employment during the school term (O'Neill 2010). O'Neill found that two thirds of these students work less than 10 hours per week and over 20% of secondary students are working more than 15 hours per week. Most older students (16-17 years) work in retail or food outlets, including supermarkets and cafes, whereas younger students (13-14 years) are more likely to babysit, clean, or do a range of outdoors jobs including paper deliveries and mowing lawns.

The effect of participation – the threshold effect

International findings on the effects of working part-time while in high school have supported a threshold for the number of hours worked, whereby the effects on achievement are positive up to a certain weekly average number of hours then reverse and become increasingly negative beyond that threshold (Marsh & Kleitman, 2002; Payne, 2003). In New Zealand, researchers have also reported that involvement in part-time work during the school term at levels higher than 15-20 hours weekly has a negative impact on achievement (Gasson, Linsell, Gasson, & Mundy-McPherson, 2003; Maloney, 2004). Conversely, Marsh and Kleitman's (2005) analysis of a large extant data base from the USA revealed that "employment during high school had mostly small but consistently detrimental effects" on senior school achievement and postsecondary outcomes (p. 363).

Other research on the effects of employment during high school has characterized the relationship with achievement as curvilinear, or an inverted "U" (Stern & Briggs, 2001). Quirk, Keith, and Quirk

(2001) reported that students who worked up to 12 hours weekly performed better academically than those who were not employed or who worked more than 11-13 hours weekly. According to this pattern, small to moderate levels of part-time work are related to higher achievement than either higher levels or no participation at all.

The effects of student participation in sport have also been investigated widely. Maloney and McCormick found that participating in seasonal sport had a negative impact on time spent studying. However, most studies support the assertion that participating in moderate levels of sport is associated with positive outcomes for learners. For example, in comparison with those who do not, students who engage in sport are more likely to attain a high school qualification than their non-participating peers (Cornelissen & Pfeifer, 2007), perform better academically in mathematics and science (Lipscomb, 2006), and earn as much as 12-31% more income by the time they reach their early 30s (Barron, Ewing, & Waddell, 2000). Much like the part-time work debate, participating in sport is said to have a number of positive effects which can lead indirectly to improved educational outcomes. These positive effects include improvements to health, building functional skills such as dexterity, improving leadership and teamwork skills, building character, and imparting other intrapersonal dispositions such as confidence, motivation, self discipline, and perseverance (Cornelissen & Pfeifer, 2007).

Multiple activities

Peck, Roeser, Zarrett, and Eccles (2008) examined patterns of extracurricular participation in relation to educational resilience among at-risk students. They found that the strongest predictive patterns of college attendance among at-risk youth were for those who had participated in sport clubs or a combination of activities including sport, volunteering, and so on. Similarly, Linver, Roth, and Brooks-Gunn (2009) found that students who participated in sport along with other extracurricular activities had the most positive outcomes, although those who participated only in sports also evidenced more positive outcomes than those who did not participate in any extracurricular activities. Furthermore, Blomfield and Barbar (2009) examined the impact of no

participation, activities only, sport only, and mixed participation on students' social concept, general self-worth, and academic self-concept. Students who participated in mixed extracurricular activities had higher social self concept, general self-worth, and academic self concept than those who did not engage in a mixture of extracurricular activities.

In combination, these studies suggest that participating in moderate amounts of extracurricular activities is more advantageous than not participating in any activities outside of school. A particularly beneficial combination appears to be spending some time in sport and some time in other extracurricular activities (Linver et al., 2009). It is, however, unclear whether there is an upper limit or threshold to the number of combined activities students engage in, beyond which involvement is detrimental. Furthermore, it is unclear how different patterns of extracurricular activities relate to academic achievement specifically.

Aims of the research

To investigate these issues, this study examined the association between part-time work and academic achievement in the context of the broader range of students' extracurricular activities. Using self-report data on both breadth and intensity of extracurricular activities, we assessed the possibility of a threshold effect or an inverted-U pattern for part-time work and other extracurricular activities. We also examined how different student patterns of engagement in activities related to academic achievement.

Method

Participants

Participants are a subset from a large longitudinal data set collected from 20 demographically diverse secondary schools in New Zealand to examine the impact of assessment practices and other factors on school achievement. A large sample of students ($N = 4,926$) reported their involvement in part-time work, extracurricular, and non-school activities during 2008. There were 2,519 females and 2,400 males; 7 students did not report their gender. There were 2,637 students in year 10 (typically age 14) and 2,257 students in year 11 (typically age 15);

32 students did not report their year at school. School decile was used as an indicator of community wealth or social economic status; for example, higher decile schools are surrounded by communities with higher average incomes than lower decile schools. Half of our sample were from middle decile, 8% from low decile, and 42% from high decile school communities.

Time spent in extracurricular activities

Students completed a survey comprising self-ratings on various factors that relate to student motivation and achievement that has been reported in previous research (Meyer, McClure, Walkey, Weir, & McKenzie, 2009). As a measure of intensity of employment, students indicated the number of hours per week they were involved in part-time work on a 5-point scale: not at all, less than 5 hours, between 6-10 hours, 11-15 hours and more than 15 hours. Breadth of activities was also measured, with students using the same (intensity) scale to indicate the number of hours spent playing sport, looking after other children (in childcare), or participating in other extracurricular activities.

Student achievement data

Achievement data were available for the year 11 students in the sample and were sourced with the students' consent from official records. Comparable achievement data are not available for year 10 students because New Zealand secondary schools do not formally record achievement until students reach the final three years of high school, beginning with year 11. Students in the senior secondary school (years 11-13) participate throughout the year in both classroom assessments and final examinations as part of a formal standards-based assessment system, the National Certificate of Educational Achievement (NCEA). Students must pass a minimum of 80 credits within and across different subjects to pass each year level of the NCEA. Students can achieve either merit (similar to a "B" grade) or excellence (similar to an "A" grade) for different assessment standards and for the overall certificate level. Achievement records were available for 2,337 students. With the exception of 262 students who were year 10 accelerant learners enrolled in selected senior courses early, the majority or a total of 2,059

students were in year 11. For 16 students, achievement data were available but not information about their year in school.

To provide an overall achievement measure, a Grade Point Average (GPA) was calculated for each student based on the formula used by New Zealand Universities using the four possible grades available for each achievement standard (e.g., assignment or test). These include: Not Achieved = 0, Achieved = 2, Merit = 3, Excellence = 4.

Results

Participation in extracurricular activities

Table 1 shows the amount of time year 10 and 11 students reported for extracurricular activities by year level. Younger students were less likely to have paid work, with approximately a third of year 10 students compared with approximately half of year 11 students employed. Just over 70% of all students reported being involved in sport, and sport was the most common extracurricular activity for both year groups. Just under half of the students in both year groups reported engaging in childcare, and a similar proportion reported they also engaged in other activities.

Table 1: Student participation in extracurricular activities by year at school

	Activity type	Not at all	<5	6-10	11-15	> 15
Year 10	Work	65 %	21%	9%	3%	2%
	Sport	27%	40%	20%	7%	6%
	Childcare	53%	32%	8%	2%	5%
	Other	50%	33%	10%	3%	3%
Year 11	Work	53%	20%	15%	8%	4%
	Sport	30%	37%	18%	9%	6%
	Childcare	55%	30%	8%	3%	4%
	Other	53%	32%	9%	3%	3%

Relation of part-time work to student achievement

The data for part-time work in relation to GPA are shown in Figure 1. A one-way ANOVA was conducted to examine the relation of part-time work to student educational achievement (GPA). As school decile has been shown to relate to educational achievement and our sample is overrepresented by learners at higher decile schools, this analysis was weighted by school decile. There was a significant main effect for hours in part-time work on GPA, $F(4,1613) = 5.65, p < .001, partial \eta^2 = .01$. Post hoc tests with Bonferroni corrections showed that those who worked 5 hours or fewer had higher GPA scores than those who did not have a part-time job and those who worked more than 15 hours per week. There were no other differences between groups. These results provide evidence of an inverted U effect, with higher levels of achievement associated with up to 5 hours of part-time work per week.

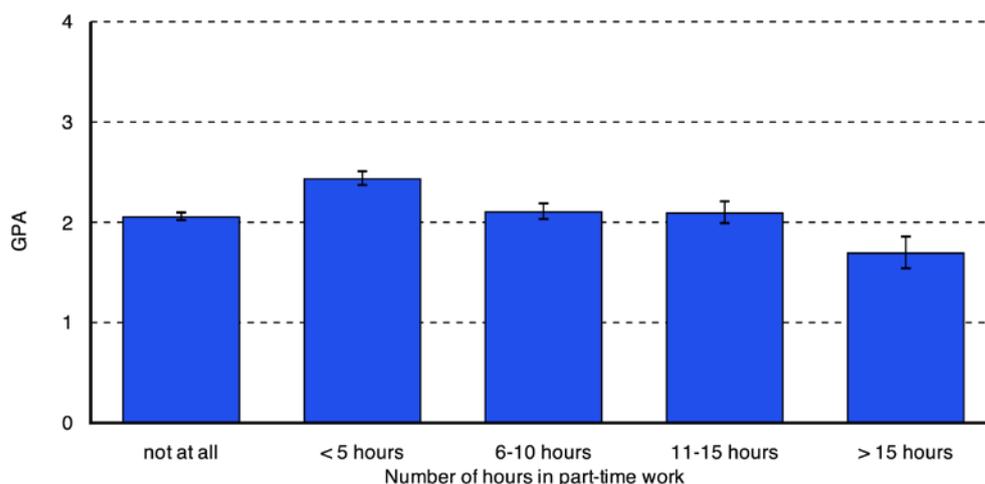


Figure 1: Student GPA scores by amount of time spent in part-time work

Relation of combined extracurricular activities on achievement

To examine the impact of mixed extracurricular activities on student achievement, category responses were re-coded for part-time work, childcare, sport, and other activities as follows: not at all = 0; 5 hours or less = 2.5; 6-10 hours = 7.5; 11-15 hours = 12.5; 16-20 hours = 17.5; 21-25 hours = 22.5; more than 25 hours. To create a total

activities score, these four estimates were summed, then recoded back into eight categories: not at all, 5 or less, 6-10 hours, 11-15 hours, 16-20 hours, 21-25 hours, and more than 25 hours. Results showed that nearly all students (92%) reported being involved in some form of extracurricular activity; 8% reported not engaging in any activities outside of school; 25% reported 5 hours or less; 24% reported between 6-10 hours; 19% reported between 11-15 hours; 13% reported between 16-20 hours; 6% reported between 21-25 hours; and 5% reported involvement exceeding of 25 hours.

The data for extracurricular activities in relation to GPA are shown in Figure 2. A one-way ANOVA was conducted to examine the relation of time in total extracurricular activities to GPA. Again, the analysis was weighted by decile. There was a significant main effect of extracurricular activities for GPA, $F(6,1611) = 5.37, p < .001, partial \eta^2 = .02$. Post hoc tests using Bonferroni corrections showed that those reporting no involvement in extracurricular activities had significantly lower GPA scores than those reporting participation for between 6-20 hours. Students who participated in extracurricular activities for 5 hours or less had lower GPA scores than those reporting participating for 6-10 hours. A trend emerged where students who were involved in extracurricular activities for more than 25 hours had lower GPA scores than those involved in extracurricular activities for between 6-20 hours (ps between .05 and .08). These results suggest effects including an 'achievement arch' in relation to total activities, with the highest academic achievement evidenced by students reporting combined extracurricular activities for between 6-20 hours per week, compared with lower achievement for students reporting a weekly average below this figure and an increasingly negative threshold effect above 20 hours weekly.

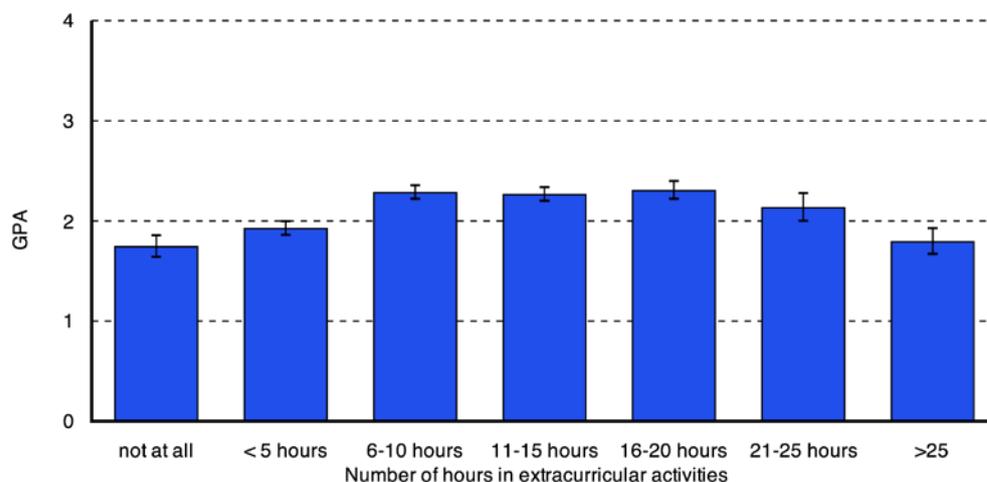


Figure 2: Student GPA scores by amount of time spent in extracurricular activities

Patterns of extracurricular activities

To investigate whether different types of activities or different patterns of activity were associated with higher or lower achievement, a proportion score was calculated for each student regarding how much of their total time in extracurricular activities was spent in part-time work, sport, childcare and other activities. Of particular interest were patterns that may be evident amongst the higher achieving groups (as a function of engagement in activities between 6-20 hours) and fluctuations in achievement as well as possible relationships between patterns of extracurricular combinations and total hours spent in extracurricular activities. Figure 3 displays the relative proportions made up from engagement in part-time work, sport, childcare, and other activities respectively for each level of ‘total accumulated hours in extracurricular activities’.

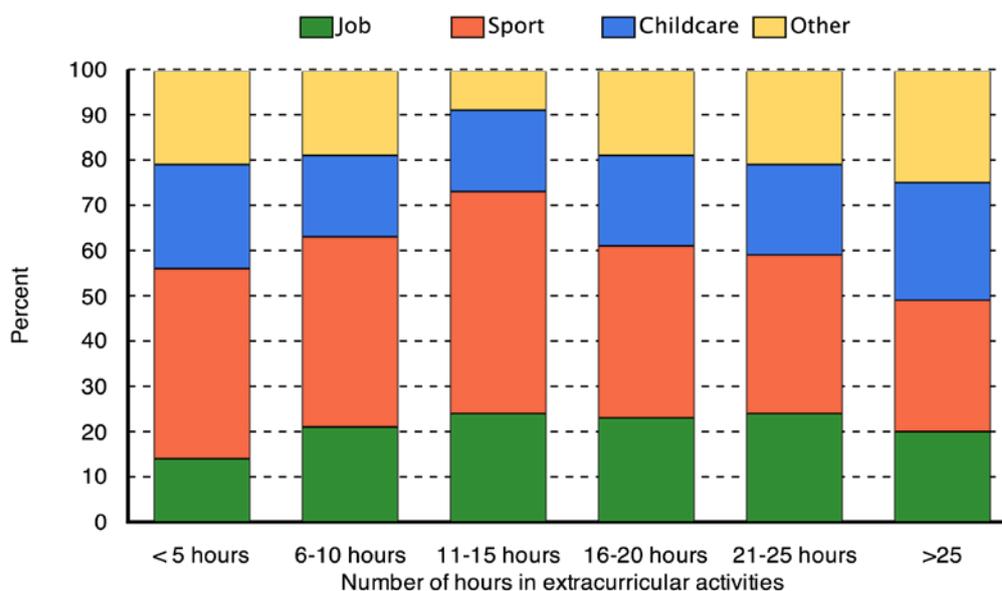


Figure 3: Proportion of time spent in part-time work, sport, childcare and other extracurricular activities

Some interesting patterns emerge. Firstly, students working part-time are typically using between 20-25% of their total time spent in extracurricular activities in employment; one exception to this pattern is that those reporting less than 5 hours of part-time work are only in employment for 14% of their total time. This result is consistent with the earlier finding for optimal levels of part-time work at no more than 5 hours per week. It appears that students who are doing paid work are typically participating in other activities as well, at a ratio of around 3:1.

Secondly, students reporting weekly involvement in extracurricular activities of either 5 or fewer hours or more than 20 (with lower GPAs) appear to be spending a greater proportion of their time engaged in childcare and 'other' activities (29-35% for the latter compared with 38-42% for the former groups), while the proportion of time in employment remains fairly constant. In combination, these results support a pattern where students with the highest level of achievement are participating in between 6 and 20 hours of total extracurricular activities. In addition, these high achievers are spending less of their total time of extracurricular activities engaging in childcare and 'other' activities.

Discussion

Measuring both breadth and intensity of involvement by secondary students in extracurricular activities revealed patterns that illuminate the debate about how participation in such activities is related to achievement. What has been described as a ‘threshold effect’ may actually reveal the impact of both total time spent in as well as the nature of extracurricular activities, including part-time work. Student engagement in both sport and in part-time work up to a certain level was associated with higher grade averages than was the case for students who reported no such activities at all or whose participation exceeded 20 hours weekly.

Bohnert et al. (2010) claim that it is the nature of those extracurricular activities that add value for student achievement: activities such as sport and part-time work are organized, supervised by adults, and require participant discipline for success and maintenance in those activities. Therefore, such activities may provide additional learning experiences for young people to develop the personal attributes needed to persevere and achieve in other domains—including achievement on curricular assessments and in meeting future career aspirations. Different activities present varied expectations that can enhance personal development further, thus suggesting there is value in encouraging students to explore more than one activity outside school. The fact that extracurricular activities are generally voluntary also means that they are likely to reflect students’ personal interests, hence students are motivated to engage. Despite these advantages, however, it is also important that those interests do not occupy excessive amounts of time in the lives of students that are likely to preclude time needed for study.

Alternatively, participation in out-of-school activities that are not organized, supervised, and disciplined may simply take time away from study without adding value in enhancing attitudes and skills related to academic success. Holding a part-time job and participating in activities such as childcare and sport for 20 or more hours weekly not only deprives students of time that might otherwise be spent on schoolwork, this level of work outside school may also be symptomatic of existing alienation from school and devaluing of

academic pursuits and interests. Caring for younger siblings in the family is an activity that has the potential to develop character and skills: child care certainly relates to future expectations that young adults learn nurturance and responsibility. But if childcare responsibilities are unsupervised, disorganized, and forced upon young people, the nature of these experiences may not provide the structure and modelling to enhance achievement-related personal characteristics.

Participation in extracurricular activities

This study provides data that are consistent with international findings that the majority of today's secondary students spent some proportion of their time engaged in part-time work, sport, childcare, and 'other' extracurricular activities—many of them spent a great deal of their time in such activities. Our data suggest that most New Zealand students in year 10 and year 11 (approximately 14 -15 years old) are engaging in extracurricular activities, with 92% of students reporting involvement in at least one organized activity outside of school. The majority of students (approximately 70%) for both year cohorts regularly play sport. Approximately a third of year 10 students and half of year 11 students are involved in part-time work. This level of employment is consistent with previous research internationally (O'Neill 2010). Nearly half of both year groups also report looking after children or doing 'other' types of extracurricular activities. As these data are self-reported, further research would be needed to assert confidently that our findings do accurately represent the level of involvement in the kinds of activities reported here. Nevertheless, it seems unlikely that students would have incentive to provide time estimates that were highly inaccurate. It is also likely that students reported at least fairly accurate figures given the option of reporting average weekly ranges of hours (e.g., 5 or fewer and more than 15), rather than having to specify a precise number of hours weekly which might well vary greatly for students.

By measuring breadth in asking about a range of extracurricular activities, we were able to measure the proportion of time students are spending in part-time work in the context of their total involvement in

non-school and extracurricular activities. With the exception of those engaged in total activities for less than five hours, students report spending approximately 20-25% of their total time in extracurricular activities in part-time work. Students also consistently report spending between 30-40% of their time playing sport. The remaining 40% of their time seems to be split between looking after other children and 'other' activities. These data give us a sense of the weekly patterns of activity for these secondary students.

Threshold effect

There has been much debate in the literature about whether involvement in extracurricular activities and part-time work enhances or hinders achievement, particularly with reference to the level at which the presumed benefits of these activities may suffer from diminishing returns. This study examined whether there is a threshold effect for part-time work in the context of the total range of activities in which students are engaged. The existing literature on a threshold effect asserts that some participation in extracurricular activities—such as employment—is beneficial in comparison with either no involvement or extensive time commitments outside school. Previous research has shown that the threshold for extracurricular employment is likely to be between 12-20 hours (e.g., see Quirk et al., 2001).

Our data were not consistent with a linear threshold effect model when considering part-time work in isolation, where the threshold was considerably lower at 5 hours or fewer. Our findings support an inverted U whereby students working 5 hours or fewer show higher achievement compared with those in no paid employment. When considering the pattern of academic achievement in relation to total activities, similarly, a trend emerged whereby students who were involved in a total of either none or more than 20 hours of extracurricular activities tended to have lower GPA scores. It is possible that the 5 hour threshold for part-time work is optimal in this sample because this figure is part of the total hours weekly that these students are spending across all extracurricular activities including work, given that students on average consistently report being in part-time work for 20-25% of their time.

Implications for Educators and Parents

These results suggest that there are potential academic benefits accruing to students who participate at moderate levels in extracurricular activities such as paid work, but that participation needs to be carefully managed. Those who were involved in extracurricular activities for less than 5 hours or more than 20 hours spent more time (as a proportion of their activities) looking after younger children and doing ‘other’ activities. This raises two questions: (a) what explains the negative relationship between engaging in higher proportions of childcare and academic achievement; and (b) what might be the specific features of the “other” activities that could be negatively impacting on academic achievement?

Perhaps childcare and ‘other’ responsibilities are frequently outside the control of many students, and they may have less choice in their level of this type of activity as say, playing sport, where participation is more likely to reflect the student’s personal interests. It may also be that engaging in activities such as childcare is more prevalent among those already at risk of underachievement at school. For example, Meyer, Weir, McClure, Walkey, and McKenzie (2009) found that learners from low decile schools spent more time in childcare compared to students from high decile schools. There is a need for further research into why this level of childcare or what types of ‘other’ activities might be having a detrimental effect on academic achievement, to clarify whether that it was the nature of these activities, rather than the time involved in total activities, that was having a negative effect.

Future research is needed to explore whether encouraging students to pursue selected structured activities would enhance academic achievement for the 8% of learners currently not involved in any extracurricular activities. Students who report no involvement in either extracurricular activities or part time work are achieving less well than those with some involvement in such activities, but it does not necessarily follow that shifting to extracurricular participation would have a direct impact on achievement. Our findings also do not support perceptions that a large number of students are involved in too

many extracurricular activities. In fact, only 5% of students reported being involved in more than 20 hours weekly of extracurricular activities – the point at which it appears to become detrimental to student learning. Of course, every student differs, and the amount of time spent in any activity should be considered in the context of each student's goals, interests, competence, and circumstances. Depending upon aptitude and circumstances, a learner may choose to focus on a particular extracurricular activity or combination of activities. Based on these results, however, the threshold of total activities would appear to be no more than 20 hours weekly that comprises more than one type of activity.

Selection effects

The relationship between participation in extracurricular activities and improved educational and employment outcomes is complex. There are many likely causes for the identified results here. Besides the theorized skill and character building elements to participation in part-time work and sport, there are likely to be additional elements underlying the general patterns observed between extracurricular activities and academic achievement. More motivated students may be more likely to participate in these extracurricular activities – hence an association with improved outcomes is not entirely surprising. As previously noted, there is evidence to suggest that students engaging in such activities do not necessarily spend less time doing homework or reading outside of class (Cornelissen & Pfeifer, 2007; Staff & Mortimer, 2007).

There may also be an inclination for less academically successful students to undertake part-time employment at more excessive levels, perhaps because they do not see themselves as being able to succeed academically or because they do not see the value of formal education for their future. This is possibly symptomatic of a tendency to withdraw from schooling early, without a school qualification (Entwisle, Alexander, & Olson, 2000; Post & Pong, 2000; Quirk et al., 2001; Staff & Mortimer, 2007). Some of these students may consider work experience and vocation-related skills as more relevant and useful to them than academic study in school. By working longer

hours, these students are likely to accentuate the documented threshold effect, particularly if they were already inclined to perform less well academically. Stern and Briggs (2001) analyzed student responses to whether working part-time conflicted with school or the two activities were mutually beneficial and found that answers to this question were to a large extent dependent on whether positive links between school and work were evident to students. Students were able to articulate benefits from working part-time such as time-management, exploring interests, and even solidifying the need to gain school qualifications in order to have a better job in the future. Their qualitative data not only provide further support for a curvilinear relationship between time spent in non-school activities and academic achievement, but also affirm the importance of knowing more about the nature of the activities in which students engage outside formal study in school to better understand these relationships.

Conclusion

These data provide some support for what might be termed an 'achievement arch' rather than a threshold effect to describe the complex relationship between achievement and extracurricular activities in secondary school. An inverted U relationship to achievement relates to a total number of hours spent weekly in non-school and extracurricular activities rather than one type of activity only such as part-time work. Our findings indicated that a small amount of paid work (5 hours or less) is associated with higher academic achievement than either high levels of paid work or no paid work. This is likely to be because the students in our sample reporting this level of involvement in part-time work were also involved in other extracurricular activities. Students were consistently involved in part-time work for 20-25% of their time, thus for most, their total hours of participation in extracurricular activities did not exceed 20 hours, which appears to be the threshold. It is likely that participation in organized extracurricular activities that are related to school interests, whether accompanied by a small amount of part-time work or not, is characteristic of students who are engaged academically. Students who elect participation in a range of activities may well be

those already pre-disposed to higher achievement, particularly if their non-academic activities reflect personal interests.

In contrast, selection factors may be reflected in lower achievement observed for both those students who are working a large number of hours and those who are neither working nor engaged in other extracurricular activities. Recent research by Staff, Schulenberg, and Bachman (2010) suggests that students whose major focus is on working intensively—whether actually employed or not—wish to do so partly because they are already experiencing difficulty in school. Clearly, it is important to examine the relationship between achievement and the total suite of combined extracurricular activities, rather than with respect to one activity only such as sport or part-time work.

Evidence that there is an optimal range of hours in work, sport, and combined organized activities does have practical implications for schools and families in a position to influence young people about school and non-school commitments. There may also be practical implications for the findings that involvement in at least some extracurricular activities relates to higher achievement. Currently, involvement in extracurricular and part-time work experiences may be primarily through self-selection. It would be interesting to explore whether encouraging lower achieving students to become more involved in such activities as well—particularly if the activities are related to personal interests—could enhance their interest in related school work and future achievement.

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The authors

Dr Kirsty Weir is the Research Manager at Ako Aotearoa, The National Centre for Tertiary Teaching Excellence. Her PhD explored the predictors of negative affect in non-clinical adolescents. Kirsty has a broad range of research interests including research methods and statistics, strengths-based education, motivation, and evaluation of research impact.

Email: k.weir@massey.ac.nz

Luanna H. Meyer is Emerita Professor of Education at Victoria University. Her research is focused on validating practical, evidence-based approaches for inclusive schools. Currently, she is Editor-in-Chief for Oxford University Press's OBO Education and is a member of the Technical Review Committee on Behavior for the National Center for Students with Disabilities who Require Intensive Interventions in the U.S.A. She has been invited to speak in eight countries and 30 US states about her work, and she has published more than 120 journal articles and book chapters. Her 12 books include *The School Leader's Guide to Restorative School Discipline*; *The Teacher's Guide to Restorative Classroom Discipline*; *Making Friends: The Influences of Culture and Development*; and *Critical Issues in the Lives of People with Severe Disabilities*.

Email: luanna.meyer@vuw.ac.nz

John McClure is Professor of Psychology at Victoria University of Wellington. He completed his DPhil at the University of Oxford and has been a By Fellow at Churchill College, Cambridge. He has numerous publications dealing with causal attributions and risk judgment in relation to enhancing educational motivation, preparedness for natural hazards, misunderstandings of the actions of persons with brain injury, and lay people's theories of intentional actions and free will.

Email: john.mcclure@vuw.ac.nz

Damian O'Neill received his PhD in Psychology from Massey University in 1997. Currently he is a senior labour research and evaluation advisor within the Ministry of Business, Innovation and Employment. In this capacity Damian has worked on a number of projects concerning school children and young people in employment, including assisting with the development of the online My First Job information resource. More recently he has worked in the Secretariat supporting the review by the Independent Taskforce on Workplace Health and Safety.

Email: Damian.O'Neill@hstaskforce.govt.nz