RESEARCH SUMMARY

Developing academic persistence in the International Baccalaureate Diploma Programme: Educational strategies and associated personality traits

Summary developed by the IB Research department based on a report prepared by:

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Background

The objective of this study was to identify the components of the International Baccalaureate (IB) Diploma Programme (DP) that support academic persistence and the individual traits associated with it. The researchers performed both an in-depth analysis of the IB educational components that have the potential to foster academic persistence and a comparison between IB students and non-IB students on relevant psychological and educational dimensions.

The researchers define "academic persistence" as the individual ability to direct personal resources towards the achievement of academic tasks and goals. In other words, it is the degree to which students feel compelled to pursue the goals needed to finish their current level of studies, regardless of the difficulties and obstacles they face.

Research design

The first two phases of the study entailed the qualitative investigation of relevant IB documents and DP teachers' perspectives, through three focus groups with ten IB teachers each, on the following areas.

1. The mechanisms, in terms of instructional strategies, pedagogic content and class management practices, through which the DP fosters students' academic persistence.
2. The personality traits that might contribute to DP students' academic persistence, which the DP aims to develop.
3. The mechanisms that the DP uses to foster these traits in students.

The third research phase consisted of the development of a questionnaire, and the administration of the questionnaire to DP students in five Eastern and Central European countries (n = 226). For comparative purposes, the questionnaire was also administered to grade 11 and grade 12 non-IB students from top-ranking Romanian high schools (n = 328). This phase aimed to assess whether the assumptions of the document analysis and teacher focus groups translated into student outcomes in terms of the relationships between educational strategies and academic persistence. Data analyses consisted of t tests, regression analyses and structural equation modelling.

Findings

Qualitative study results

The qualitative results, based on the document analysis and teacher focus groups, indicated 10 strategies that were expected to foster academic persistence.

1. Applicability of knowledge
2. A clear framework
3. An independent work style
4. Teachers' involvement
5. Focusing on the student
6. Intense collaboration and partnership with the teachers
7. Student class size
8. An updated curriculum
9. A comprehensive DP curriculum
10. A curriculum focused on students' real, practical needs

Quantitative study results

The quantitative phase of the study entailed the administration of a questionnaire to a sample of IB students, both from Romania and from other Eastern and Central European countries (Poland, Czech Republic, Hungary

and Serbia) and to a sample of comparable non-IB students from Romania.

IB instructional strategies that foster academic persistence

Results from the qualitative portion of the study identified 10 strategies that are expected to foster academic persistence (see above). Quantitative analysis confirmed that all of these strategies have a significant fostering effect on academic persistence. Nine out of 10 of these educational mechanisms were significantly and positively correlated to academic persistence, while the tenth was marginally significant. Furthermore, among these educational mechanisms, **the two strategies that were found to have the greatest impact on academic persistence were "a comprehensive DP curriculum" and "a curriculum focused on students' real, practical needs".**

IB students with high levels of academic persistence also tend to perceive their school as actively employing these educational mechanisms. The main benefits of these educational strategies are that the DP is designed not only to provide a high-quality education, but also to involve students as active agents who can engage in learning that is significant to their own needs and future pathways. Through such strategies, the DP promotes a learning experience that facilitates students' holistic intellectual, cognitive, professional and personal development and, consequently, their long-term educational engagement. Also, the practical use of knowledge through real-life connections is positively associated with long-term commitment.

Individual traits that foster academic persistence

Researchers also examined students' individual traits that contribute to academic persistence. The researchers drew upon the results of the two qualitative research phases to further analyse a set of six psychological traits by testing their relationship to academic persistence. The traits are:

1. mastery goals
2. restraint
3. general self-efficacy
4. proactive attitude
5. critical thinking
6. academic resilience.

Mastery goals refer to students' tendency to choose goals and tasks that allow them to focus on the growth and development of their skills, not only on receiving formal acknowledgment and rewards for their work (Pintrich et al. 1993; Daniels et al. 2009). **Restraint** reflects the students' capacity to engage in long-term tasks by avoiding getting side-tracked by momentary distractions and temptations, with minimum adult supervision (Tangney, Baumeister and Boone 2004; Maloney, Grawitch and Barber 2012). **General self-efficacy** relates to the belief and confidence in one's ability to face difficult and challenging tasks (Schwarzer and Jerusalem 1995). Another dimension is **proactive attitude**, or the predisposition towards initiative (Schmitz and Schwarzer 1999). **Critical thinking** refers to the higher-order set of skills and strategies employed in applying information and knowledge to new problems, or when critically evaluating new concepts and ideas (Pintrich et al. 1993). **Academic resilience** is also a prominent factor, as surpassing obstacles and being able to cope with stress is essential in order to adapt to the challenges of demanding academic environments (Martin and Marsh 2006).

All six of these traits proved to significantly foster academic persistence. Further analysis, however, revealed that three of these traits have the strongest effect on academic persistence, specifically **mastery goals, restraint and general self-efficacy.**

Relationship between IB instructional strategies and individual traits

This portion of the study aimed to identify whether there is a relationship between the DP and the individual traits that contribute to academic persistence. The researchers examined students' perceptions about the degree to which IB instructional strategies are reflected in their daily academic experience. In order to address this topic, given the specificity of these mechanisms and the lack of instruments on these dimensions in the scientific literature, the authors built short (three-item) scales evaluating each of the strategies that the IB World Schools employ (or are expected to employ) that are likely to foster academic persistence.

The correlations between the scales assessing IB students' perceptions on the relevant educational strategies and the corresponding individual traits were all significant and positive. In other words, the higher the students rated their school on the relevant instructional strategies, the higher they rated themselves on the corresponding individual traits. This result is indicative of the congruence between the philosophies promoted by the IB and the implementation of IB curriculum.

Outcomes of academic persistence

The researchers also examined the influence of individual traits and instructional strategies on key outcomes that are related to academic persistence: academic performance, intention to drop out, absenteeism and academic aspirations. Overall, the results showed that academic performance and intention to drop out are influenced by the set of traits and educational strategies under consideration.

The positive influences of these traits and educational strategies, therefore, are not limited to the psychological level of academic persistence, but they also support practical outcomes. **This finding suggests that fostering academic persistence through the development of related characteristics and educational strategies has a higher stake than just promoting persistent attitudes and behaviours; it also leads to lower dropout intentions and higher academic performance, both of which are essential educational outcomes.**

Comparison between IB students and similar non-IB students

Comparisons on individual traits associated with academic persistence

The results of the comparisons between IB students and equivalent non-IB students from Romanian high schools show that relative to traditional Romanian schools, **the IB programme promotes a climate that better supports students in completing their education.** The reason for this seems to be that non-IB students perceive their educational experiences as less guided by educational strategies that aim to develop their academic persistence.

The results of the independent samples t test comparing the two student samples revealed significant mean differences on four of the seven traits[1] associated with academic persistence (see table 1).

Trait	Mean (IB)	Mean (non-IB)	*t*(569)	*p*
General self-efficacy	3.16	3.09	2.03	<.05
Proactive attitude	3.24	3.14	2.78	<.01
Critical thinking	4.97	4.61	3.34	<.05
Academic resilience	4.79	5.08	2.64	<.01

Table 1. Comparison of the traits associated with academic persistence between IB and non-IB students.

On average, IB students scored significantly higher than their non-IB peers on the first three of these traits, while the non-IB students scored significantly higher on academic resilience. The differences on the other traits (mastery goals, restraint and general motivational persistence) were not significant.

The results of this analysis show that academic resilience, a psychological trait that could help students better overcome difficulties, is the only personality dimension on which IB students scored lower than the non-IB group. IB students perceived academic resilience as being under-implemented within the DP, and reported that teaching periods during the academic year do not prepare them enough for the requirements and pressures of the examination period, making them less able to adapt to its difficulties. This is an area for possible future consideration by the IB.

Comparisons on student perceptions of whether the educational programme fosters traits associated with academic persistence

This section compared IB and non-IB student perceptions of the degree to which their respective educational programme fosters the traits that are associated with academic persistence. The results of the comparisons between the two samples are presented in table 2. **In five of out of six of the traits, IB students were significantly more likely than non-IB students to report that their educational programme fosters these traits.** Only in the case of academic resilience was the difference not statistically significant.

Degree to which the educational programme fosters associated traits	Mean (IB)	Mean (non-IB)	*t*(569)	*p*
General self-efficacy	4.21	3.81	4.06	<.001
Proactive attitude	4.21	3.72	5.75	<.001
Restraint	4.19	3.93	2.79	<.01
Critical thinking	4.41	3.81	6.69	<.001
Mastery goals	4.23	3.68	4.45	<.001
Academic resilience	3.85	3.80	.25	.80

Table 2. Comparison of the perception of the degree to which educational programmes foster key traits.

Comparisons on student perceptions of the instructional strategies that foster academic persistence

This section examined how IB students and non-IB students rated each of the educational mechanisms that support academic persistence. The results of the comparisons between the two samples are presented in table 3. **The IB students rated significantly higher than non-IB students on all of the 10 educational mechanisms that foster academic persistence.**

[1] The six traits that emerged from the previous research phases, plus motivational persistence.

Educational mechanisms	Mean (IB)	Mean (non-IB)	*t*(569)	*p*
Applicability of knowledge	4.23	3.36	9.76	<.001
A clear framework	3.88	3.70	2.17	<.05
An independent work style	4.09	3.82	3.53	<.001
Teachers' involvement	4.32	3.73	6.80	<.001
Focusing on the student	3.80	3.39	4.92	<.001
Intense collaboration and partnership with the teachers	4.25	3.58	7.14	<.001
Student class size	4.07	3.43	8.11	<.001
An updated curriculum	4.31	3.42	12.74	<.001
A comprehensive curriculum	4.04	3.47	7.24	<.001
A curriculum focused on students' real, practical needs	4.06	3.13	8.74	<.001

Table 3. Comparison of the perception of educational mechanisms that foster academic persistence.

Summary

In summary, the study found that the DP fosters students' academic persistence to a higher degree than does the traditional education system (at least the Romanian system). This effect is mostly due to a set of distinct instructional strategies that foster academic persistence both directly, particularly through the adapted and comprehensive curriculums, and indirectly, through the development of certain psychological traits supporting academic persistence. Moreover, academic persistence further stimulates academic performance for IB students and decreases intention to drop out of school.

Recommendations

Below is a summary of some of the key recommendations provided by the authors based on the study. For the complete list of recommendations, please see the full report.

Given the critical role of academic persistence for IB students' academic performance and other educational outcomes, DP teachers should be made aware of the importance of developing this trait in their students. Furthermore, the set of educational strategies and individual traits that support academic persistence should be made explicit and educators should be encouraged to fully apply the strategies under their control, such as building relationships with their students and promoting an independent work style.

To stimulate students' long-term goals, IB educators should emphasize the benefits of the DP for students' future educational opportunities. For example, schools could provide students with more information about how and where the DP is recognized by universities. This, in turn, would help to develop students' academic persistence and educational commitment, in line with the empirical studies revealing that students' learning motivation is sustained by their awareness of the ways in which education can help their future career plans (Barrett 2000). Two IB educators stated that "the most persistent students are the ones that have a clear vision about what they are going to do post-secondary", and that students' academic persistence is stimulated by "the options they feel are available for them at the end of [their] high schools studies". A further recommendation from the researchers is to explain the relevance of the IB learner profile to students' lives and the practical skills that students develop, as well as the ways in which these skills and dispositions could help to advance their education and careers.

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This summary was developed by the IB Research department. A copy of the full report is available at www.ibo.org/en/research/. For more information on this study or other IB research, please email research@ibo.org.

To cite the full report, please use the following:

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