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Fostering Student Motivation and Engagement Through Teacher Autonomy Support: A Self-Determination Theory Perspective

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In this study, we qualitatively explore how teachers perceive the usefulness of teacher autonomy support in fostering student motivation and engagement. Seven science and mathematics teachers from Singapore secondary schools were gathered for semi-structured interviews after implementing teacher autonomy support in their respective classrooms. Thematic analysis was used to analyse the interview data using the concepts pre-conceived from literature. The findings herein suggest that teachers perceived the usefulness of teacher autonomy support on student psychological needs satisfaction, and ultimately motivation and engagement (behavioural, emotional, cognitive). The findings have two implications: (1) teachers internalise the value of autonomy support in student motivation and engagement and (2) teachers perceive each autonomy-supportive strategy in a distinct manner, in terms of its contribution to dimensions of student engagement. It is then recommended for future teacher autonomy support workshop not only to teach the strategies, but also to highlight each strategy's usefulness in different student and classroom situations.

Keywords: behavioural engagement, emotional engagement, cognitive engagement, self-determination theory, student motivation

INTRODUCTION

Background of Research

Student motivation is conceptualised as the internal drive and energy to learn effectively, while student engagement is described as the external expressions of these energy and drive (Christenson et al., 2012; Ryan & Deci, 2000). Motivation and engagement play important roles on positive student outcomes, such as learning

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achievement (Martin, 2001, Martin et al., 2003). As they serve a crucial and indispensable part in enhancing student learning achievement, it is imperative to understand the ways that support student motivation and engagement. Existing research has revealed several determinants of student motivation and engagement, of which includes the quality of teacher interpersonal tone (Chang et al., 2016; Maldonado et al., 2019; Reeve et al., 2004), teacher-student relationships (Kelly & Hansen, 1987), school climate (Anderman & Maehr, 1994), and demographic factors (Martin et al., 2003). Furthermore, intervention studies have been done to support positive student outcomes of which have shown success in improving student test anxiety (McInerney et al., 1997), student motivation (Acee & Weinstein, 2010; Brown et al., 2015; Fernandez-Rio et al., 1997), and student engagement (Herrmann, 2013). In terms of motivation and engagement, teacher autonomy support has received the most attention in education literature (Reeve & Cheon, 2021). Indeed, numerous studies have consolidated the role of teacher autonomy support in student motivation and engagement (Behzadnia & Ahmadi, 2019; Núñez & León, 2019; Zhou et al., 2019). For instance, Behzadnia and Ahmadi (2019) found that teacher autonomy support enhances student autonomous motivation, skill learning, and performance. Similarly, Zhou and colleagues (2019) revealed that student psychological need satisfaction mediates the effect of teacher autonomy support on student motivation. Further, Núñez & León (2019) found that teacher autonomy support predicts student autonomy needs satisfaction, followed by enhanced student engagement. While the significance of teacher autonomy support in student motivation and engagement has been widely established, none of the studies to date has investigated the teacher perceptions of its usefulness in supporting student motivation and engagement. As teachers are the "medium" for delivering educational interventions, such as autonomy support, it is vital to understand how they perceive its usefulness in supporting student outcomes as consolidating their perceptions could provide teachers justification of their instructional practices. The justification of instructional practices could potentially convince teachers to adopt autonomy-supportive strategies. The present study herein aims to investigate how teachers understood the usefulness of teacher autonomy support in enhancing student motivation and engagement.

The Current Study

The current study aims to qualitatively examine how teachers perceive the usefulness of teacher autonomy support on fostering student motivation and engagement. Generally, the current study aims to answer, "How do teachers perceive the role of teacher autonomy support on student motivation and engagement?". A closer look at the teacher perceptions of student benefits from autonomy support could potentially: (1) unpack teacher understanding of the autonomy-supportive strategies, (2) prompt teacher acknowledgement of autonomy support-related student benefits and lastly (3) facilitate teacher willingness to adopt these strategies in their instructional practice. As such, this study aims to discern how teachers perceive the satisfaction of student psychological needs for autonomy, competence, and relatedness, in the context of teacher autonomy support. Moreover, the study also aims to extend on teacher perceptions of student behavioural, cognitive, and emotional engagement within the context of teacher autonomy support. The findings of this study hope to provide insights on teacher

experiences and perspectives of delivering autonomy support to students, which could be useful in designing teacher education programmes and future teacher autonomy support workshops.

Review of the Literature

Self-Determination Theory

Teachers are determinant in creating learning climates that either support or thwart student inherent propensities to growth (Liu et al., 2016). Teacher-student interactions organise the interpersonal tone salient in the classroom, thereby influencing student motivation and engagement. Research based on the Self-Determination Theory (SDT) has extensively focused on the potential of teacher autonomy support in fostering student motivation and engagement. According to SDT, student motivation varies in orientation, from amotivation to intrinsic motivation. Students inherently have growth tendencies and desire for personal fulfillment. The healthiest and most productive achievement generally takes place when students are intrinsically interested in the activity (Ryan & Deci, 2000). Typically, students perform classroom activities based on external contingencies in varying degrees, as seen on Fig. 1 below. To facilitate internalisation and integration of extrinsic motivation, the learning environment must satisfy student basic psychological needs for autonomy, competence, and relatedness. These needs are universal, and frustration of these needs could engender low levels of motivation, engagement, or even maladaptive behaviours. Autonomy refers to the need to self-endorse one's own behaviour (Ryan, 1993). Competence refers to the need to feel effective in one's environment. And lastly, relatedness refers to the need to connect with others. The satisfaction of autonomy, competence, and relatedness leads to intrinsic motivation (Ryan & Deci 2000).

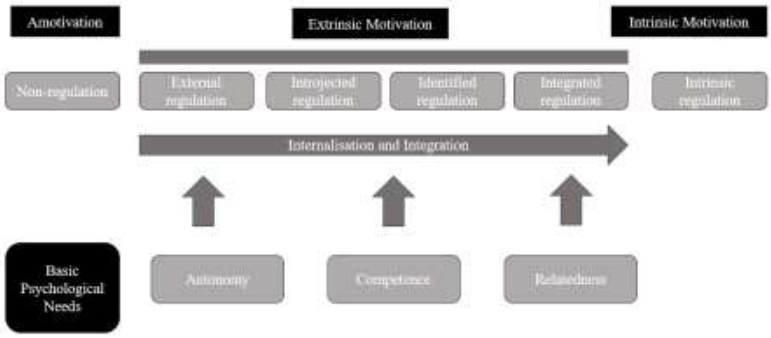

Figure 1
Self-determination theory (Ryan & Deci, 2000)

Intrinsic Motivation

SDT operationally defines intrinsic motivation as the form of motivation that takes place when a learner engages in tasks for innate enjoyment (Ryan & Deci, 2000).

Exploration and curiosity-based activities commonly embody intrinsic motivation as they are not based on external contingencies, but instead as genuine source of own satisfaction. Previous research has shown the benefits of intrinsic motivation (Pelikan et al. 2021; Sun & Gao, 2020). For instance, Pelikan and colleagues (2021) showed that meaningful social interactions and perceived competence foster intrinsic motivation, which in turn enhances learning behaviour. Moreover, Sun and Gao (2020) revealed that intrinsic motivation has a positive influence on student behavioural intention in using mobile-assisted language learning through perceived usefulness. Overall, there is a consistent and significant evidence on the importance of intrinsic motivation in fostering productive learning in students. As such, it is vital to elucidate the ways to support student intrinsic motivation.

Intrinsic Motivation and Engagement

Student engagement is described as the student participation in school-related activities, along with commitment to learning (Christenson et al., 2012). In line with SDT assumptions, all students have inherent growth tendencies, such as intrinsic motivation. While motivation can emerge from multiple sources, intrinsic motivation arises from the satisfaction of psychological needs within the SDT framework (Reeve, 2012). When social environment satisfies the basic psychological needs, students establish a motivational foundation at which student engagement follows (Reeve, 2012; Ryan & Deci, 2000). Student engagement to learning is enhanced when students perceive their environment as supportive their needs (Deci & Ryan, 2002). For instance, students who perceive their learning as autonomous are more likely to experience enjoyment in class (emotional engagement), demonstrate initiative (behavioural engagement) (Patrick et al., 1993) and push themselves in achieving their goals (cognitive engagement) (Deci & Ryan, 1985). Moreover, students who feel competent in classroom activities are more likely to exert more effort (Skinner et al., 2008). When students feel related to teachers and peers, they are more willing to participate in learning tasks (Shen et al., 2012). Hence, when student psychological needs are satisfied by their learning environment, their inherent propensity to grow, to explore, and to pursue learning are more likely to manifest (Reeve, 2012). Within SDT, student engagement is seen as general engagement in the classroom (Reeve, 2012). In the current study, student engagement is viewed as a multidimensional construct, namely, behavioural engagement, emotional engagement, and cognitive engagement (Reeve at al., 2020), which are discussed further below.

Behavioural Engagement

Behavioural engagement refers to the visible actions students take on to exert effort in a learning task (Reeve et al., 2020). This form of engagement is typically measured in terms of their degree of persistence in the face of challenges, degree of preparation to come to class, and level of task completion. Such actions may manifest from student motivational states (e.g., extrinsic or intrinsic motivation, psychological needs satisfaction) (Skinner et al., 2008), quality of learning environment (needs-supportive, classroom structure), and these expressions of involvement and task effort generally

predict academic progress and achievement (Ladd & Dinella, 2009; Olivier et al., 2020).

Emotional Engagement

Emotional engagement refers to the emotional connection between student and learning activity which promotes learning involvement (Reeve et al., 2020). Emotional engagement may include affective aspects such as valence (positive, negative) and activation (activating, deactivating) (Pekrun, 2006). Correspondingly, this form of engagement is typically defined and measured as positive and activating emotions (enjoyment, interest). These emotions could arise from student motivational factors and supportive learning environments (Gutiérrez & Tomás, 2019). These positive and activating emotions are known to correlate with learning progress and achievement (Özhan & Kocadere, 2020).

Cognitive Engagement

Cognitive engagement refers to actions taken by students to understand what they are learning or to solve problems through a barrier that is hindering academic progress (Reeve et al., 2020). This form of engagement is typically measured in terms of level of learning strategies use, task concentration, attentional control, and critical thinking. These actions to improve thinking strategies mostly arise from student motivational factors (self-efficacy beliefs, mastery goals) (Greene et al., 2004), and their utilization has been shown to positively influence academic achievement (Pietarinen et al., 2014).

Teacher Autonomy Support on Student Motivation and Engagement

Teacher autonomy support is an instructional approach that aims to nurture student basic psychological needs (autonomy, competence, relatedness), interests, values, and preferences. Generally, it emerges from a student-focused mindset and an understanding tone (Vansteenkiste et al., 2019). The role of teacher autonomy support in nurturing student motivation and engagement has been established (Meng & Keng, 2015; Moreira & Lee, 2020; Ng et al., 2016). For example, the correlational findings from Ng and colleagues have shown a strong association between teacher autonomy support and student psychological needs satisfaction (2016). Moreover, a study done by Meng and Keng (2015) have shown that students under autonomy-supportive teachers display higher levels of psychological need satisfaction, motivation, and engagement, in comparison to students not under autonomy-supportive teachers. Finally, a longitudinal study on Portuguese middle school students has shown that though there was a general decline in student cognitive engagement over time, this downward trend was less discernible with teacher autonomy support (Moreira & Lee, 2020). Overall, the studies described suggest the role of teacher autonomy support on student motivation and engagement to learning.

METHOD

Participants

The participants in this study were obtained from a larger project titled, 'Creating a Motivating School' (OER 12/19 LWC). A part of qualitative data from the project was

used in this study. The selected participants were science and mathematics teachers in Singapore secondary schools from the autonomy-supportive (experimental group) of the study. As the larger project has an experimental group (conducting autonomy support) and a control group (not conducting autonomy support), teachers from control group are excluded. The selected teachers were also from seven different secondary schools in Singapore.

Table 1
Demographic information of participants

Teacher Code	Gender	Years of Teaching Experience
1	Male	1.5 years
2	Female	20 years
3	Female	14 years
4	Female	17 years
5	Female	1.5 years
6	Female	2 years
7	Female	31 years

Procedures

This study was done based on an autonomy-supportive intervention. Prior to the start of the intervention, the teacher participants took part in an online teacher autonomy support workshop. Due to the pandemic restrictions, the supposed three on-site training workshops were reduced to two online training workshops. The first workshop involved the main training of the teacher autonomy support, which consisted of the presentation of conceptual overview of SDT, including basic psychological needs and SDT continuum of motivation. Introduction to teacher autonomy support and videos of each strategy were provided to illustrate them. Furthermore, findings on the outcomes of teacher autonomy support on student motivation and engagement were also presented. A second online workshop was held to conduct a check-in and gather clarification about the intervention from the teacher participants. After the two online workshops, the trained teacher participants then practised the autonomy-supportive strategies in their respective classrooms for 10 weeks. A week after the end of 10 weeks, the teachers were then gathered for an individual semi-structured interviews to understand their experience and perceptions of teacher autonomy support.

Data Collection

The data was collected through individual semi-structured interviews via *Zoom* according to the teacher selected timings. All teachers were provided with an informed consent form and were briefed thoroughly on the study aims. The confidentiality of their interview responses was also assured. A list of pre-defined questions was used in the interview. The key interview questions included: *what examples of interactions the participants had with their students*; *how did the students respond to these interactions*; and *do participants think there are advantages or benefits of using teacher autonomy support in their classroom*. Each of the key questions were carefully selected to understand the teacher experience in delivering autonomy support and their perceptions of the student reaction, especially in terms of motivation and engagement. Each study

participant was interviewed once. Each interview lasted for an average of 30 minutes. The completed transcripts were sent to the teachers to gather feedback.

Data Analysis

Based on Braun and Clarke (2006), thematic analysis was employed using six steps:(1) familiarising of the data through transcription, reading, and re-reading of the transcripts, (2) generation of initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) production of report. After reading and re-reading of the transcripts, initial coding was done on information that are relevant in answering the research questions. Codes that are similar were combined to form themes preconceived from the literature. The transcripts were coded using a pre-defined coding scheme conceived from the literature. The coding scheme is detailed on Table 2 below

Table 2
Coding scheme for thematic analysis

Themes	Codes Used	Examples of coded interview data
Autonomy	autonomy	student agency
Competence	competence	recognise task difficulty so students don't feel bad
Relatedness	relatedness	not too harsh on students
Intrinsic Motivation	intrinsic motivation	self-run; self-motivated
Behavioural Engagement	task involvement willingness persistence	students ask for consultation on topics
Emotional Engagement	positive emotion negative emotion	enjoy the activities; less afraid to ask questions
Cognitive Engagement	meeting learning goals aspire to obtain achievement	progressing in completing the task

The trustworthiness of the study was ensured through iterative questioning during interview and debriefing sessions with another SDT researcher. Discussions with the said researcher during analysis allowed for alternative perceptions to emerge. Any disagreement was discussed until consensus was reached. In addition, the researcher was mindful that the analysis was not based on own perspectives, and by using verbatim quotations from the teachers themselves (Heery et al., 2019).

FINDINGS

The present study describes teacher perceptions of the usefulness of teacher autonomy support in fostering student motivation and engagement. The results on student motivation are represented based on basic psychological needs and intrinsic motivation, while results on student engagement are represented by its behavioural, emotional, and cognitive dimensions.

Theme 1: Autonomy

Teacher participants agreed that teacher autonomy support fulfils the student psychological need for autonomy. It was suggested that being autonomy supportive

provides students with autonomy and ownership in the way they achieve their learning goals, and that it nurtures student motivation to learning on their own.

I was convinced during my sharing that it (being autonomy supportive) actually helps students….it motivates them in terms of how they want to achieve their learning goals.…also some form of independent learning (Teacher 1)

You have to make sure that the students want to learn instead of forcing them to learn.....student agency should be supported in class… when they take ownership, that's where you can let them do their own thing. (Teacher 5)

Theme 2: Competence

The fulfilment of competence need was also reiterated across the interviews. A teacher participant expressed that some traditional classroom activities, such as class tests, were adapted to fit the purpose of developing the student need for competence, at which students monitor their own progress and enhance the quality of their motivation.

I felt that the motivation level is reached that they (students) take it seriously as assessment for learning. They want to do it for themselves. (Teacher 7)

In addition, it was stated that acknowledging student difficulties in doing certain learning tasks can also be beneficial to their feelings of competence.

Maybe telling them, "This is difficult, that's why you're taking more time" might be beneficial… and they won't feel so bad about themselves. (Teacher 1)

Theme 3: Relatedness

Teacher participants claimed that teacher autonomy support improved the quality of their relationships with students. It was also suggested that providing such support not only enhances quality of student-teacher relations, but that peer relationship also helps in student motivation as well.

They are disappointed with their results. My motivation was these students. If you're too harsh on them, they won't learn. They will pull away from you. (Teacher 2)

It takes time…. when they (students) see that more and more peers are motivated, it is then what influences those (students) whom I initially couldn't reach. (Teacher 4)

Theme 4: Intrinsic Motivation

It was acknowledged that teacher autonomy support affords teachers the means to nurture self-directedness in students, and ultimately in the development of intrinsic motivation. While teachers perceived the approach as more effortful and inconvenient, they recognised that these efforts pay off in the long run. This is excellently illustrated in the following excerpts below.

If you start off with all these then towards end of the year, it's really self-run. The class becomes a lot more self-motivated. (Teacher 5)

I think it's a generally very good approach and I would do it because it increases their intrinsic motivation. It could either be enjoyment in the subject or finding that more relevant or just enjoying it because I'm teaching it and they feel comfortable with me… and I think people feel safe to answer or not be afraid to have things wrong or they are just generally interested. (Teacher 6)

Theme 5: Behavioural Engagement

It was conveyed by the teacher participants that supporting student daily autonomy maintained their active engagement in learning activities. They mentioned of the students becoming more open to ask questions and more willing to experience initial failures. Moreover, they specified that students have taken more initiative in their learning progress by gaining more awareness of their own strengths and weaknesses, as well as by asking more questions.

They (students) are studious but there are also weak ones. That's why the encouraging factor must still be there. The success that I can see is when the weak ones improve, or when the weak ones are taking more initiative to learn and ask questions. (Teacher 3)

Teacher participants, who perceived their students as relatively less engaged, noted that providing teacher autonomy support could at least make their students willing to stay awake in class, through the enhancement of student-teacher relations.

(There are students) who do need extra care or attention and…a bit more nudge. I need them to stay, even if not fully engaged, at least partially engaged. They need to be present and be there and try (Teacher 2)

Theme 6: Emotional Engagement

Teacher participants also stated their observations of emotions that accompany the increased involvement. It was suggested that students experience more enjoyment when incorporating activities to the lesson plan that are hands-on and personally relatable to them.

If you ask the students what they enjoy most is all these kinds of projects…. Then we ask them, you have bread, grow the bread for ten weeks. Put it in the dark place and then the mould will grow. They enjoy those kinds of things. (Teacher 7)

Lastly, the alleviation of feelings of fear was also mentioned in the interviews. It was suggested that instigating more affirming interactions with students, accompanied with deliberate openness to answering questions, made the students feel less afraid of the teacher and the subject matter itself.

Advantages, definitely the rapport, confidence-building in students. At least they don't find the math lesson less fearsome, and they are not afraid to ask questions (Teacher 4)

Theme 7: Cognitive Engagement

It was revealed that providing autonomy support enhances student cognitive engagement. Students exerted more effort to meet the intended learning goals of the learning tasks and obtain mastery of learning content.

When I came back to check on them, I see that they are progressing (in completing the task)….so instead of scolding them and say, "Why are you so off-task?' that they then (become) very unmotivated (Teacher 1)

When they were doing (the revision checklist) in class, they were really reading..they ask me questions like "What does this mean?" …. they do take it quite seriously. (Teacher 5)

DISCUSSION

The research objective of this study is to obtain an understanding of teacher perceptions on the effectiveness of autonomy support in supporting student motivation and engagement. Accordingly, the discussion section details the key findings in relation to the research objective and its congruency with existing theoretical and empirical work.

Generally, the teachers in the study perceived the autonomy-supportive strategies as effective in satisfying student psychological needs. In particular, the teachers perceived the acts of obtaining student perspectives and vitalising inner motivational resources as means to nurture intrinsic motivation in students. As per SDT, intrinsic motivation pertains to doing a learning activity based on inherent satisfaction and joy (Deci & Ryan, 2000). In here, teachers are able to plan instruction that purposefully orients with student motivational assets (Reeve, 2016). Moreover, student perspective-taking may come together with vitalising student inner motivational resources, which include autonomy, competence, relatedness, interests, curiosity, intrinsic goals, that naturally align with internally regulated motivation (Niemiec & Ryan, 2009). Student autonomy, competence, and relatedness are vitalised when they are given latitude for self-directed learning, when offered appropriate challenges in a supportive manner, and when given opportunity to interact with others respectively (Jang et al., 2016; Keller & Bless, 2008; Ryan & Powelson, 1991). Student curiosity and intrinsic goals are vitalized by using exploratory activities and opportunity for personal growth. Interestingly, the findings here are consistent with the study by Ng and colleagues which revealed that teachers perceive autonomy support as important for student-centric learning (2015). In addition, experimental work done on student motivation revealed that consideration of student interest and preference in classroom instruction resulted into student increased involvement in work task (behavioural engagement) and feelings of enjoyment (emotional engagement) (Graciani Hidajat et al., 2020; Mallari & Tayag, 2022). This is apparent in the current data where teacher participants suggested that incorporation of hands-on activities, based on student preferences, results into enhanced involvement in class, as well as more positive emotions.

The participants also recognised providing explanatory rationale, acknowledging negative affect, using non-pressuring language, and displaying patience to satisfy student psychological needs. As seen on the data, the teachers perceived these autonomy-supportive strategies vital for the internalisation of extrinsically motivated behaviours. When teachers provide an explanation as to why effort must be exerted in doing a useful activity, students are able to understand the utility of the task, which may transform a perceived "unimportant activity" into a "valuable activity" — motivation is pushed towards the more autonomous end of the spectrum (Reeve, 2016). When

teachers provide rationale to students, it helps in facilitating the volition of "wanting to do" the activity (Jang, 2008). Moreover, the teachers perceive acknowledging negative affect to foster competence need satisfaction, especially when students are working with challenging tasks. Student negative emotions in the classroom may interfere with student learning and engagement (Obergriesser & Stoeger, 2015). As such, the dissipation of these negative emotions (through teacher acknowledgement) will prevent this interference and motivationally primes the student to engage and benefit from the task (cognitive and emotional engagement). In the same way, teachers perceive using non-pressuring language and displaying patience as ways to satisfy relatedness needs of the students. Using informational and non-pressuring language is practiced at any form of teacher-to-student communications. In here, teachers maintain positive teacher-student relationships. As per SDT assumption, relatedness needs are necessary in the internalisation of social learning (Ryan & Deci, 1985). Classroom interpersonal tone that is conducive for feelings of attachment to teachers is related with student positive work attitude and motivational orientation (Connell & Wellborn, 1990). Finally, teachers perceived displaying patience as a means to satisfy student relatedness needs. In here, teachers patiently watch and observe the students, but do not intervene right away (Reeve & Jang, 2006). When teachers allocate ample time for self-initiation, students feel understood, which then enables them to actively participate (behavioural engagement) and become more interested (emotional engagement) in learning.

Overall, the findings suggest that teacher autonomy support nurtures student basic psychological needs. According to Reeve (2012), motivation is equated with psychological need satisfaction within SDT framework. Motivation then serves as the foundation at which student engagement arises. In here, the findings suggest that satisfaction of autonomy need provides a motivational basis for behavioural and emotional engagement, satisfaction of competence need provides a motivational basis for cognitive and emotional engagement, and satisfaction of relatedness need provides a motivational basis for emotional and behavioural engagement.

Practical Implications

There are two practical implications that can be derived from the current study. First, there is a consensus that teachers believe in the effectiveness of teacher autonomy support in supporting student motivation and engagement. This implies that teachers internalised the value of teacher autonomy support in the classroom. It is then recommended for future teacher autonomy support workshops to highlight the student benefits from receiving autonomy support. In this way, it allows the teacher to internalise the value of autonomy support, and thus supporting their volitional sense to incorporate them in their instructional practice. Secondly, the findings suggest that teachers perceive each autonomy-supportive strategy distinctly, in terms of its contribution to dimensions of student engagement. This implies that teachers may adopt some of the autonomy-supportive strategies intentionally, depending on the student and classroom situation. It is then recommended for future teacher autonomy support workshops to conduct teacher training according to student type (in terms of motivation) and classroom situation (revision or lecture time), as to better equip the teachers to apply the strategies accordingly.

Limitations and Future Research

Though the findings of this study elucidated a fine-grained analysis on how teacher autonomy support fosters student motivation and engagement, it is necessary to recognise its limitations. First, the findings are based on teacher perceptions on the role of teacher autonomy support in student motivation and engagement. As the desired outcomes are based on students, teacher perceptions may not accurately depict actual student motivation and engagement outcomes. Second, the study had a limited sample size of seven teachers. As only one teacher represents each school, the findings may have only captured limited perspectives, hence, limiting the generalisability of the study. It is then recommended for future research to extend on the findings of this study by using student perceptions to obtain a more detailed elucidation of their motivation and engagement in the context of teacher autonomy support.

CONCLUSION

The current study investigated how teachers perceive the effectiveness of teacher autonomy support on supporting student motivation and engagement. The findings herein suggest that teachers perceive the usefulness of teacher autonomy support on student psychological needs satisfaction (autonomy, competence, relatedness), and ultimately motivation and engagement (behavioural, emotional, cognitive).

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