Understanding the effect of being a big fish in a little pond on academic self-concept

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Academic self-concept is not only considered a relevant variable influencing many educational outcomes directly or indirectly, but also an important educational goal in itself (Marsh & Hau, 2003). Therefore, it is important to understand how students' academic self-concept develops and what affects it. In this paper, our focus is on the big-fish-little-pond (BFLP) model (Marsh, 1987) as an explanatory framework. The central presumption of this model is that the comparison of one's academic performance with that of one's immediate peers is a strong determinant of academic self-concept. In this literature review, we will try to show that this model applies to many issues in educational research, and also has significant practical implications. Furthermore, we want to give an impression of some related topics that require more attention and that could inspire future research on this matter. (*Netherlands Journal of Psychology 65*, 89-101.)

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The study of academic self-concept is considered a central topic in educational research: Not only because having a good perception of oneself academically is important on its own, but also because academic self-concept influences many other important variables directly or indirectly (Bong & Skaalvik, 2003; Marsh & Hau, 2003). For instance, academic self-concept has been associated systematically with academic achievement, persistence, coursework selection, educational choices, long-term educational aspirations, and intrinsic motivation (Bong & Skaalvik, 2003; Dickhäuser, Reuter, & Hilling, 2005; Dickhäuser & Stiensmeier-Pelster, 2003; Marsh, 1989; Marsh & Hau, 2003; Marsh & Yeung, 1997). In addition to educational outcomes, students' academic self-concept has also been linked with their overall well-being and adjustment (Koch, 2006; Solomon, 2006).

According to Bong and Skaalvik (2003), academic self-concept comprises the knowledge and perceptions a person has about him/herself in an academic context. Academic self-concept also fits with a multidimensional perspective on self-concept. Although the multidimensional nature of self-concept is now widely accepted, most researchers were convinced that self-concept was a one-dimensional construct until Shavelson, Hubner, and Stanton developed their multidi-

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mensional and hierarchical model of the self-concept in 1976. This model comprises three hierarchically organised levels: (1) the first level contains the most general form of self-concept, called global self-esteem or general self-concept, (2) on the second level this global self-esteem is divided in an academic and a non-academic component, and (3) on the third level these components are each divided into domain-specific self-concepts such as maths and reading self-concept (Marsh, Craven, & McInerney, 2005). Even though there are differences between authors in the labelling of these levels and although some controversy remains about the hierarchical organisation, this is the general structure of the self-concept construct as it is accepted by most contemporary researchers (Manning, Bear, & Minke, 2006). It should be clear that academic self-concept is part of the second level of the model: It is more specific than global self-esteem, but more general than the domain-specific self-concepts.

One reason why academic self-concept is so crucial to educational research results from this multidimensional nature: Because it is more specific than global self-esteem, academic self-concept has shown to relate better to specific behaviours than global self-esteem (Manning et al., 2006). Academic self-concept has also been positively associated with many educational outcomes, whereas no or negative correlations have been found between these educational outcomes and non-academic self-concepts (Marsh & Hau, 2003).

Given the role of academic self-concept for students' adjustment, it is important to understand how students' academic self-concept develops and what factors affect it. Although different explanations are possible, in this paper, the focus is on the *big-fish-little-pond (BFLP) model* (Marsh, 1987) as an explanatory framework. This model is a particularly influential framework within educational effectiveness research discussing the development of academic self-concept and has stimulated a lot of empirical research. Our first aim is to give a brief overview of the history of the BFLP model, its theoretical underpinnings, and the myriad of empirical evidence supporting it. Our second aim is to illustrate the practical relevance of the BFLP model. More specifically, we focus on its implications for grouping practices in secondary and in special education. Third, we intend to explore the understudied link with social psychology literature and to describe two important social comparison processes, assimilation and contrast, underlying the BFLP effect. Finally, we mention some additional topics for further BFLP research, including the possibility of variables moderating the BFLP effect. Accordingly, new directions for future research are highlighted.

Unfolding the BFLP model

History of the BFLP model

James Davis (1966) was the first to try to find out why the academic quality of a student's college had so little influence on his or her individual choice of a career. Why is it that students from high ability/status schools do not always choose the highest or most difficult career options? He noticed that equally able students had higher career aspirations when attending a lower ability college instead of a higher ability college and explained this finding in terms of social comparison and relative deprivation: Students tended to compare their own achievement with the achievement of other students on their campus and used this comparison to judge their own abilities. To make his findings about this comparison tendency more comprehensible, he used the aphorism of a frog in a pond and thus created the *frog-pond theory*. In this theory, Davis asserted that it is better for a student's educational mobility to be a big frog in a small pond (or a relatively high achiever among relatively low achievers) than to be a small frog in a big pond (or a relatively low achiever among relatively high achievers).

The frog-pond theory of Davis was adopted by Marsh and Parker in 1984, which led to the development of the big-fish-little-pond model by Marsh (1987). The central presumption of this model is that the comparison of one's academic performance with that of one's immediate peers is a strong determinant of academic self-concept. So, whereas Davis (1966) focused primarily on the consequences of being a big or small frog/fish for students' educational choices, Marsh (1987) centred on the consequences for academic self-concept.

Theoretical underpinnings

Marsh's BFLP model is based largely on three research traditions. Apart from the obvious sociological underpinnings (see Davis, 1966), two other research traditions are of significance. First, the model is influenced by notions of psychophysical research. In this kind of research a lifted weight is judged as light or heavy in relation to other weights that form the immediate frame of reference (Dijker, 2007; Helson, 1964; Woodworth, 1938), just like Marsh (1987) has stated that students' academic self-concept will be high or low depending on the comparison of their own achievement with the achievement of students in their immediate context who form their frame of reference. It is obvious, however, that the BFLP model is first and foremost based on social comparison theory (Festinger, 1954). Festinger stated generally that there is a drive within individuals to compare themselves with other persons in order to evaluate their own opinions and abilities (when there are no objec-

tive standards). Marsh (1987), however, applied Festinger's paradigm very specifically to the school context and contended similarly that students have a strong need to compare their own academic achievement with some kind of external standard or frame of reference. Moreover, students use this comparison to form their academic self-concept. That is why objectively equal accomplishments can be disappointing for some students (leading to a negative academic self-concept) and wonderful for others (leading to a positive academic self-concept).

Empirical evidence

Not only does the BFLP model have a rich theoretical background, but throughout the years Marsh's model has also been directly or indirectly confirmed by many empirical studies (Brookover, 1989; Kulik, 1985; Marsh, 1984; Reuman, 1989; Rogers, Smith, & Coleman, 1978; Schwarzer, Jerusalem, & Lange, 1983; Strang, Smith, & Rogers, 1978). Jerusalem (1984), for example, found that the best students of low ability schools often displayed lower achievement levels, but displayed higher academic self-concepts than the worst students of high ability schools.

Nonetheless, the research that provided the most compelling evidence for the BFLP model focused on the (negative) relation between the average ability of a school and the individual student's academic self-concept, after controlling for effects of individual achievement or other variables such as socio-economic status (SES) (Craven, Marsh, & Print, 2000; Marsh, 1991; Marsh, Chessor, Craven, & Roche, 1995; Marsh & Hau, 2003; Marsh, Köller, & Baumert, 2001; Marsh & Rowe, 1996; Marsh, Trautwein, Lüdtke, Baumert, & Köller, 2007; Trautwein, Lüdtke, Marsh, Köller, & Baumert, 2006). In this research school average ability is usually operationalised as the mean of the scores of all participating students from one school on a standardised ability test (usually these students are in the same grade). This means that every student receives the same test regardless of the school he or she is in. More specifically, Marsh et al. (2001) found that the academic self-concept of equally able students is lower for students in high ability schools than for students in low ability schools. This finding may seem astonishing because it is contrary to the widely accepted notion that going to well performing schools (i.e., schools with a high reputation and high ability levels) leads to several benefits and has no drawbacks. Marsh and colleagues (2001) do not deny that such schools can have a positive effect on achievement; they claim that self-concepts of individual students in these schools are lower than those of equally able students in low ability schools. Moreover, they maintain that this purely positive 'evaluation' of high ability/status schools is rather naive, because it does not take into account the initial higher achievement levels and other pre-existing differences of students in these high ability schools. This explains why BFLP researchers usually control for several variables such as individual achievement and/or SES (Marsh, 1991).

Although BFLP researchers explain the finding that equally able students have a lower academic self-concept in high ability schools than in low ability schools by referring to the BFLP model, other explanations of these findings are possible. For instance, these findings might be (partly) explained by differences in the school culture and associated didactics between higher and lower performing schools (e.g., more emphasis on achievement or competitiveness in higher achieving schools). Furthermore, higher and lower performing schools might differ in teachers' expectations towards students or in teachers' relationships with their students, which may also affect students' academic self-concept (Harter, 1998; Leflot, Onghena, & Colpin, 2009; Muys, 1997; Rosenthal & Jacobson, 1968; Verschueren & Gadeyne, 2007, see further).

Practical implications of the BFLP model

Previously, we gave a description of the BFLP model and its effects and we also mentioned the myriad of empirical evidence supporting this model. However, a model is relatively worthless if it has no practical implications. Therefore, we aim to illustrate the practical relevance of the BFLP model in this paragraph. More specifically, BFLP research has provided many useful suggestions regarding the subject of ability grouping. Although ability grouping has been a common practice in education for many years, there is and has been much controversy about whether it is good or not to segregate students – *average* students as well as *special* students (Ross & Harrison, 2006).

These organisational arrangements, also referred to as *grouping practices*, are in fact the practical translation of a larger dynamic of curriculum differentiation (i.e., making different knowledge accessible for different students; Oakes, Gamoran, & Page, 1992). Usually, these arrangements are defined as part of an educational plan regarding the organisation of students or schools that is aimed at reducing the heterogeneity of instructional groups (Ross & Harrison, 2006; Slavin, 1990). Although this general definition might lead to an illusion of simplicity, the concept of ability grouping is certainly not simple. On the contrary, it is a very complex matter because of the great amount of variation in the way ability grouping is implemented across countries or cultures, across educational systems, and even across schools. The best approach to shed some light on this matter might be to describe a particular form of grouping by its main features. A first possible feature is the *number of groups* that are distinguished. Sec-

ond, one can also look at the extent to which grouping practices are *visible*: Are they more implicit or explicit? Third, the *selection criteria* that underlie the membership of these groups often differ across educational systems. Students can, for example, become appointed to a group based on their previous achievement, but this can also happen based on the students' financial resources. Fourth, grouping practices can occur at different *institutional levels*. According to Liu, Wang, and Parkins (2005), there are two basic levels on which grouping can occur: within classes or between classes. Apart from these two levels there is another, more global level that occurs frequently: grouping between entire schools. Finally, the *impact* of grouping practices on students' future school careers is also an important feature (Trautwein et al., 2006).

In the following, we discuss two specific *grouping contexts* in which the BFLP model may prove to be exceptionally relevant: (1) grouping practices in secondary education, and (2) grouping practices of students with special educational needs.

Grouping practices in secondary education

Byrne (1988) asserted that schools grouping their students according to their abilities are the ideal environment for social comparison processes to occur. That is why it could be quite intriguing to see how contrast and assimilation effects operate in secondary education settings, where grouping practices are widespread. Because the groups or tracks in secondary education are easily established, highly visible for students and teachers, and distinct (they have their own social structure and values), they are the ideal candidate for being a frame of reference to the student.

More specifically, there are three main forms of ability grouping that have often been mentioned in studies concerning ability grouping in secondary education: (1) streaming (British) or tracking (American), (2) banding, and (3) setting (British) or regrouping (American) (Liu et al., 2005). Streaming or tracking is a form of between-class grouping where students are grouped on the basis of a measure of general ability. They stay in the same classes for all lessons. Banding is a more flexible form of grouping between classes where students are also grouped in ability bands based on a general measure of ability. However, in contrast with streaming, a band contains several classes and students can be regrouped for *some* subjects. Setting or regrouping is the least restrictive form of between-class grouping because students are grouped based on their achievement in each curriculum subject separately. So, it is theoretically possible to be in a different class for *each* subject (Ireson & Hallam, 2001).

As a consequence of these common grouping practices, students in secondary education may not only use their school as a possible reference group, but they may also use their track or stream as a reference group. The BFLP model may be particularly useful in evaluating such tracking or streaming systems regarding their effects on (academic) self-concept. For instance, the BFLP model would predict that streaming (or tracking) has a positive effect on the academic self-concepts of lower stream students, because they will compare their academic performance with that of students of their own stream (showing relatively low achievement levels) and not with the academic performance of their higher stream peers (showing relatively high achievement levels). This also means that tracking might have a negative effect on the academic self-concept of students in the higher streams, according to the BFLP model, because these students will compare themselves with highly achieving peers in their own higher stream. So, when evaluating grouping practices in secondary education, it might not only be useful to look at the effects on academic achievement; it might also be constructive to examine the effects on (academic) self-concept.

Although there is much debate about grouping practices in secondary education and their meaningfulness, the debate about grouping practices for special children, such as gifted children, might be especially important. The segregation or inclusion of gifted children has also been a controversial issue. This is why a considerable part of BFLP research in Marsh's tradition is dedicated to this matter. According to BFLP researchers, there are few benefits (provided that one takes pre-existing differences into account) in terms of achievement and especially important drawbacks in terms of academic self-concept associated with putting gifted students full-time together in specialised classes (Craven et al., 2000). Accordingly, research has shown consistent negative effects on the academic self-concept and mixed findings about the positive effects of grouping practices on the achievement of gifted students (Craven et al., 2000; Marsh et al., 1995).

Grouping practices of students with special educational needs

BFLP research also has considerable implications for government policies regarding students with disabilities or with learning difficulties (Robinson, Zigler, & Gallagher, 2002). Robinson and colleagues mention the passionate debate about inclusion or segregation of gifted as well as mentally retarded students. Some arguments for the claim that segregated classes or schools are not beneficial for students with mental retardation can be found in *labeling theory* (e.g., Dunn, 1968) and in the more recent *modified labeling theory* (Link, 1987; Markowitz, 1998). According to these theories, segregating children in specialised classes or schools could result in negative consequences (e.g., low expectations,

stigmatisation, and non-competent role models). For these reasons and also from a perspective of human rights, it is recommended that students with mental retardation (or students with another disability) should be integrated in mainstream education (i.e., inclusion instead of segregation) (Ainscow & César, 2006). However, other researchers, including BFLP researchers, maintain that these specialised classes or schools represent the most adequate educational setting for students with special needs (see Marsh, Tracey, & Craven, 2006). Some researchers even argue that the inclusion movement (based on labelling theories) is largely based on the unproven assumption that stigmatisation will be reduced when attending regular schools or classes (Marsh et al., 2006).

In fact, it is possible that both sides are right depending on the kind of outcome measure used for the evaluation of the placement. Regarding the effects on self-concept Marsh and colleagues (2006) found, in accordance with theoretical predictions, that students with mild intellectual disabilities (MID) in regular classes are more likely to have lower general school, maths, reading, and peer relationship self-concepts than students with MID in special classes. The physical ability, appearance, and parent relationships self-concepts of the two groups, however, did not differ significantly. In his meta-analysis Chapman (1988) reported similar findings: (1) students with a learning disorder in segregated or partially segregated classes had higher global self-esteem than students with a learning disorder in regular classes, and (2) students with a learning disorder in segregated classes had a higher academic self-concept than students with a learning disorder in partially segregated or regular classes. On the other hand, regarding the effects on academic achievement, research has shown that students' academic achievement is higher in inclusive education (Cole, Waldron, & Majd, 2004; Freeman & Alkin, 2000). With regard to the effects of inclusion vs. segregation on the social development of children with special needs, research findings are inconclusive: A few studies revealed negative effects of inclusion (Nakken & Pijl, 2002), whereas other studies found no differences between included or segregated students (e.g., Mand, 2007) or even a positive effect of inclusion (Freeman & Alkin, 2000). So, it seems vital to empirically verify further which effects placement has on a variety of important outcomes, such as achievement, academic self-concept, or social development.

Although it seems that the BFLP model favours the 'segregation' side in this discussion, this favouring is based on the assumption that children with disabilities in specialised classes or schools primarily use their classmates as their frame of reference and not their *normally* achieving peers. Yet there is some evidence that students with learning disabilities spontaneously use their normally achieving peers as their social comparison group (Renick & Harter, 1989). This behaviour could stem from their strong desire to be *normal,* or their desire to be similar to *normal* children. Although these findings cannot be generalised to other groups of children with disabilities, they seem to indicate that it is important to realise that several reference groups are possible at the same time (Zeleke, 2004). Moreover, one can never be sure which reference group is actually chosen unless, for example, one of the reference groups is made more salient through some experimental manipulation.

These implications of the BFLP effect for grouping practices of different populations (such as regular students, gifted students, students with learning disabilities, and students with mental retardation; Marsh et al., 2006) illustrate the relevance and the broad scope of the BFLP model.

Common grounds with social psychology

Contrast and assimilation effects

In the previous section, we mentioned that the BFLP model is strongly influenced by insights from Festinger's (1954) social comparison theory. Despite this obvious theoretical link, BFLP researchers to date have paid little attention to the link between their research and social psychological research (Dai & Rinn, 2008; Marsh et al., 2008). More specifically, the BFLP effect can easily be considered a specific manifestation of a well-known social comparison effect: the contrast effect. A contrast effect occurs when the self-evaluation of an individual shifts away from the comparison target following a comparison process. Interestingly, in the field of social psychology a reverse effect has been described too, known as the assimilation effect. Assimilation means that the comparison process results in a self-evaluation that is in line with that of the comparison target (Cheng & Lam, 2007). This assimilation effect points towards the possibility that the achievement of a certain group can also affect the self-concept in an opposite manner. In a nutshell: Significant others can influence a person's self-evaluation in two ways: (1) through a contrasting process (= contrast effect), and (2) through a reflection process (= assimilation effect) (Pleban & Tesser, 1981). Moreover, both processes may produce negative as well as positive effects on the self-concept depending on the achievement level (high or low) of the reference group which the individual uses to form his or her self-concept. Surprisingly, this explanation of the BFLP effect in terms of social comparison has rarely been examined thoroughly (Burleson, Leach, & Harrington, 2005).

Marsh acknowledges the assimilation effect and confirms that self-concept can indeed be enhanced by being a member of a certain group (Marsh, Kong, & Hau, 2000; Wu, Chang, &

Huang, 2006). Marsh et al. (2000), for example, found a positive relation between perceived school status and self-concept (assimilation) and a negative relation between school average achievement and self-concept (contrast). However, Marsh et al. (2001) have also stated that the assimilation effect only occurs if the group is positively valued by the individual. This positive evaluation is usually the direct consequence of the high achievement levels or qualities of that group. It could be said that the glory of the group's accomplishments reflects on each of the individuals' self-concepts (in that group). This is why Cialdini, Borden, Thorne, Walker, Freeman, and Sloan (1976, p.366) call this 'tendency for people to publicise a connection with another person [or group] who has been successful' *basking in reflected glory*. According to Marsh (1991), who also uses the term reflected glory effect (RGE), these RGEs should be most clearly established when looking at the effects of school status or track type instead of looking at school average achievement. After all, it may be less threatening to be in a high status school (leading to more assimilation) than to be in a school with high average achievement levels – especially when your achievement is relatively low.

Even though BFLP researchers accept that RGEs exist under certain conditions, they claim that RGE's play a much smaller role than contrast effects. Marsh et al. (2000) have stated that what researchers observe in an actual school context (i.e., negative relation between group achievement and individual self-concept) is in fact the net or combined effect of the two opposing processes (i.e., assimilation and contrast). Because the resulting effect is negative, the contrast effect has to be much stronger than the assimilation effect, so they assume (Marsh et al., 2001). An important implication, then, is that for BFLP researchers the BFLP effect is not the same as the contrast effect: It is a combination of a strong contrast effect and a weaker assimilation effect. However, this does not mean that assimilation effects will *always* be weaker than contrast effects. As we will explain below, there are several possible reference groups students have at their disposal in a real-life school context. Therefore, it will be paramount to identify the relative importance of these different reference groups and to investigate more clearly in which situations social comparison will result in contrast effects and in which situations it will result in assimilation effects.

Predicting dominance of contrast versus assimilation

As mentioned above, we emphasise the fact that, no matter who you compare yourself with, there is always the theoretical possibility of both contrast and assimilation effects. For example, if you choose your track as your reference group and your track has a high average achievement level, then a contrast effect (leading to a lower academic self-concept) and/or an assimilation effect (leading to a higher academic self-concept) could occur. In the end, however, the self-evaluation will shift in one of the two directions. The question then is: When will social comparison result in a stronger contrast effect and when will it result in a stronger assimilation effect on the self-concept? One possible key factor is the relative salience of the in-group within an intergroup context (Brewer, 1991; Levine & Moreland, 1987; Mullen, 1991; Simon, 1992). In her *optimal distinctiveness theory,* Brewer (1991) has stated that membership of a large majority group should activate the individual's need for differentiation from other group members and promote intragroup contrast. Membership of a minority group, however, should already satisfy this need for differentiation resulting in intragroup assimilation and intergroup contrast.

Additionally, it might be interesting to draw on *social identity theories*. According to the *self-categorisation theory* there are three general levels of self-definition: (1) self-categorisation as a human being (super ordinate level), (2) self-categorisation in terms of in-group/out-group differentiations (social identity; usually associated with assimilation), and (3) self-categorisation as a unique individual relative to other in-group members (personal identity; usually associated with contrast) (Brewer & Weber, 1994). Especially the last two levels are essential for the current argumentation because, according to *social identity theory*, self-esteem is to a great extent influenced by personal identity and social identity (Brewer & Weber, 1994; McFarland & Buehler, 1995). Put differently, the effect on self-concept depends on the degree to which a student sees him/herself as actually belonging to a group and being part of something bigger (cf. social identity) or more as an individual (cf. personal identity). Brewer and Weber (1994) have claimed that although both forms of identity have an effect on self-evaluation (i.e., you can feel good because you have valued personal attributes, but also because you belong to a valued group; McFarland & Buehler, 1995), they are markedly different concepts.

The question then changes: Under which conditions will in-group membership activate social identity (assimilation) as opposed to personal identity (contrast)? According to some researchers this may depend on the extent to which individuals tend to emphasise their interdependence with others and their independence from others (Gardner, Gabriel, & Hochschild, 2002; Kemmelmeier & Oyserman, 2001). Individuals with highly independent self-construals will value their own personal uniqueness and think of themselves as distinct and different from others (activation personal identity), whereas individuals with highly interdependent self-construals define themselves as part of a relationship or a group and will emphasise related-

ness and closeness (activation social identity). These insights from social identity theories are particularly interesting because of the relatedness between the concepts personal and social identity, on the one hand, and contrast and assimilation effects, on the other. Although it is often assumed that the activation of personal identity is associated primarily with contrast effects, whereas the activation of social identity is associated with assimilation effects, different associations may be possible.

It would not be unlikely that very independent individuals, whose personal identity is activated, do not care about the performance or opinion of the other group members at all. Hence, they would not use social comparison to form their self-concept, but some more internal source of information. Furthermore, the activation of social identity may not necessarily lead to assimilation effects. Cheng and Lam (2007), for example, have found that if there are strong positive feelings regarding membership of a group (caused by a minority group context or by an interdependent self-construal for example), social comparison will always lead to positive effects on the self-concept regardless of whether the group's performance is better or worse than that of the other groups (Gardner et al., 2002; Kemmelmeier & Oyserman, 2001; McFarland & Buehler, 1995; Stapel & Koomen, 2001).

These findings might be explained by the identity management strategies as mentioned in social identity theory. This theory states that when the social identity of individuals in lower performing or lower status groups is activated and they are confronted with their group's lower status, they experience psychological and physical stress (Tajfel & Turner, 1986). As a consequence, these individuals will try to reduce the impact of the stress through several strategies – behavioural as well as cognitive. Examples of behavioural management strategies that individuals might employ are (1) increasing the distance between themselves and their unsuccessful group (Snyder, Higgins, & Stucky, 1983), and (2) trying to obtain a higher position individually or collectively (mobility). It is not always possible, however, to use these behavioural strategies and sometimes cognitive management strategies may be more useful. Examples of these cognitive strategies, also called *social creativity*, are (1) decreasing the importance of the domain in which the group performs badly, (2) stressing the importance of other domains in which the group performs well, and (3) avoiding situations in which the group might be negatively evaluated (Derks, 2007; Derks, Van Laar, & Ellemers, 2007).

Another explanation could be that the failure of the group is compensated by the sense of a 'community spirit' that produces good, positive thoughts in general and thereby influences the self-concept of the individual. This 'team spirit' might also lead to a decrease in the importance attached by the individual to achieving better than other groups. As Kemmelmeier and Oyserman (2001) claimed, individuals high in interdependence may be more concerned with the interpersonal bond, but not necessarily with their ranking relative to others.

In sum, we have identified two key factors that may provide information on the effects of social comparison. First of all, membership of a large majority group should lead primarily to contrast effects, whereas membership of a small minority group should lead primarily to assimilation effects with own group's performance. Second, on the basis of social identity theory, we can make a distinction between social and personal identity. When an individual's personal identity is activated, social comparison should result in stronger contrast effects within the individual's own group. Another possibility is that these individuals are entirely unaffected by social comparison as a result of their independent nature. On the contrary, when an individual's social identity is activated, social comparison may result in stronger assimilation effects when the individual's own group is performing better than other groups. However, this social identity may also result in stronger contrast effects when the individual's own group is performing worse.

These findings may be particularly interesting for individual students, and may also have great value for interventions that target the BFLP effect, because they suggest that interventions that enhance the extent to which a student values his or her group (activation of social identity) should always lead to a more positive self-concept.

The future of the big fish

Although the BFLP model has been a fruitful framework for empirical studies, several important issues remain understudied (Dai & Rinn, 2008). First, past research has focused primarily on one-frame analyses, ignoring the co-existence of *different frames of reference*. Byrne (1988), for example, maintains that students primarily compare themselves with students in other tracks and that comparison within a track is less important. She found that students in lower tracks considered themselves less capable than high-track students. Other researchers found that students' self-concept is greatly affected by their classmates' achievement levels (Pomerantz, Ruble, Frey, & Greulich, 1995), whereas BFLP researchers mainly focused on the school as an important frame of reference. So, when doing research on grouping practices, researchers should be very cautious in interpreting their findings because there are different frames that students can take as a reference. Thus far, very few studies have examined more complicated contexts which consist of a multitude of potential reference groups such as those of everyday life (e.g., school, track, class, and friends). Furthermore, it is not yet clearly established what

the relative importance of simultaneously occurring reference groups is and how these groups are chosen. One example of research that does look at the relative importance of different reference groups is the study conducted by Wu and colleagues (2006). They demonstrated that the effects of school and class average achievement on self-esteem failed to reach significance when the achievement level of friends was taken into account. One might conclude from this study that friends appear to be a more important reference group than classmates. Of course further research is needed on this subject.

Second, there is little research on the relative strength of assimilation and contrast effects following grouping processes in high schools or on the *development* of these processes in general (Liu et al., 2005). What we do know is that several large-scale studies showed a U-shaped quadratic age effect on academic self-concept for early to middle adolescents (Lau, 1990; Marsh, 1989; Marsh, Parker, & Barnes, 1985). Basically, these studies found students having a higher academic self-concept in Grades 7, 10, and 11, but having the lowest academic self-concept in Grade 9. Furthermore, Marsh et al. (2001) claimed that the negative effects of the BFLP effect should grow stronger over time and that these effects are permanent. Indeed, there is evidence that the effects of social comparison are long-lasting and remain strong even after students have left high school (Marsh et al., 2007), but this does not provide detailed information on the evolution of assimilation and contrast over time.

In an attempt to create a more thorough view on the development of assimilation and contrast, Liu and colleagues discovered that between-group comparisons are more pronounced immediately after grouping, whereas within-group comparisons are limited at that time because there is no or little chance for objective comparison. Over time these within-group comparisons become more and more important – especially when the class environment is highly evaluative or competitive. More specifically, they found that students from a lower stream had a more negative academic self-concept immediately after grouping, but that these students had a more positive self-concept three years later (compared with students from a higher stream). This could mean that immediately after grouping students form their self-concept based on comparisons between groups, on average leading to a more negative self-concept for the lower track students (compared with higher track students). After a few years, however, the self-concepts of these students will depend more on within-group comparisons and this could lead to a boost in self-concept for some of the lower track students who now compare themselves with peers from the same track (assuming that the achievement level of peers in their own track is lower than the achievement level of students in higher tracks and closer to their own achievement level). Although this rationale is certainly plausible, there are of course other explanations possible, and further research on this matter is necessary.

Third, as argued earlier, being a member of a high/low track (or a group with high/low achievement levels) may not automatically lead to contrast or assimilation effects on academic self-concept and grouping may not be universally good or bad for one particular student. Thus, studies on the factors *moderating* these effects are particularly interesting. For example, do low achieving students experience a stronger BFLP effect than their high achieving peers (Marsh & Hau, 2003; Marsh et al., 2001; Seaton et al., 2008)? Although BFLP research (e.g., Marsh & Hau, 2003) typically shows small and inconsistent interactions between the effects of group level achievement and *individual achievement*, it may be interesting to further investigate this matter, for example, with analyses for contrast and assimilation effects separately or in other educational settings than secondary education.

A second possible moderating factor in the relation between social comparison and self-concept is *contingent self-esteem* (Jansen & Vonk, 2005). Contingencies of self-worth represent those domains in which self-esteem is threatened by failure and increased by success in that domain. In other words, they are the domains in which goals are linked to self-esteem: One has to do something to be a worthy person (Crocker, Luhtanen, Cooper, & Bouvrette, 2003). Crocker and colleagues (2003) have argued that, because these goals are linked to self-esteem, success or failure concerning these goals leads to intense affect and considerable fluctuations in self-esteem compared with other, equally important goals that are not linked to self-worth. Crocker et al. have defined seven domains on which a person's self-esteem can depend (although many other contingencies are possible): family support, virtue, God's love, competition, appearance, academic competence, and approval from others. The first three domains are considered more internal, whereas the other four are considered relatively external domains or contingencies.

The way we have described contingent self-esteem so far, applies to the *within-persons approach* of contingent self-worth, but there also exists a *between-persons approach*. Researchers following this second approach (e.g., Deci & Ryan, 1995; Kernis, 2003) have stated that people do not only differ in the domains they choose, but also in whether they have contingent versus 'true' self-esteem. Unlike contingent self-esteem, true self-esteem does not depend on your success or failure in a domain, but develops naturally by acting autonomously in supportive relations. However, according to Crocker and colleagues, it is rare for people to have no contingent self-esteem at all. Only 4% of the participants in their study (with college students) had a score of 3 or less on a total of 7 on all of the con-

tingency domains. Irrespective of how contingent self-worth should be conceptualised, it could be hypothesised that individuals who have (higher) contingent self-esteem will experience a stronger BFLP effect than those who have (more) true self-esteem. Contingent individuals' global self-worth falls or drops according to their performance in particular domains. Consequently, their view of themselves in the academic domain may also be more dependent on their performance, as compared with that of significant others, in that domain.

When looking at the different contingency domains, it could be expected that focusing on more internal domains (e.g., family support and God's love) leads to weaker BFLP effects, because these individuals are primarily occupied with the support they receive from their family, the love they receive from God, or their virtue, instead of focusing on their academic performance. The more external or more individually focused domains (e.g., competition and academic competence), however, may lead to stronger BFLP effects. Because these individuals place such high value on competition, academic competence, or on external validation in general, the ideal context for BFLP effects to occur is constituted.

Related to these remarks on contingent self-worth, is the suggestion that *motivation* may also act as a moderator in the relation between social comparison effects and self-concept. According to self-determination theory (SDT; Deci & Ryan, 2000), it is not only important *what* you pursue, but also *why* you pursue it. The 'what' refers to the specific contents of the goals you are pursuing and these goals can be divided in intrinsic (e.g., personal growth) or extrinsic goals (e.g., financial success) (Sheldon, Ryan, Deci, & Kasser, 2004). People with intrinsic goals might be less vulnerable for BFLP effects than people focusing on extrinsic goals. Indeed, these extrinsic goals strongly resemble the more external contingency domains: If an individual focuses on extrinsic goals like academic status, his or her self-esteem may likely depend on more external domains, hence leading to a stronger BFLP effect (as was hypothesised before).

Regarding the 'why' of behaviour, SDT makes a distinction between two kinds of motives: controlled and autonomous motives (Sheldon et al., 2004). When individuals experience controlled motivation for some activity, they will do this because they are pressured by themselves or others (through guilt and shame for example). Contrary to this, individuals with more autonomous motivation will do activities because they want to do those activities, because they think they are personally relevant. Again, one might assume that individuals with a more external orientation (controlled motivation) might be more affected by contrast effects, leading to a stronger BFLP effect, than individuals with a more internal orientation (autonomous motivation). However, these predictions still need to be empirically examined in further research.

Another important distinction, which might be relevant, is the distinction between *mastery and performance goals*. It could be expected that people focusing on mastery goals (i.e., motivated by the desire to confirm competence) are less affected by contrast effects (and more affected by assimilation effects) than people who are focusing on performance goals (i.e., motivated by the desire to outperform others). This may lead to a stronger (weaker) BFLP effect for individuals with performance (mastery) goal orientations (Martin, Marsh, Debus, & Malmberg, 2008).

A final moderator, suggested by many theorists, is the extent to which individuals believe they can achieve similar success in the future (Collins, 1996; Lockwood & Kunda, 1997; Major, Testa, & Bylsma, 1991). Research by Testa and Major (1990) demonstrated that upward comparisons are debilitating, but only when accompanied by low *perceived control* or low changeability. Findings of Kemmelmeier and Oyserman (2001) also showed that the extent to which individuals believe they can improve their own performance is an important factor – primarily for low interdependence individuals. Again, these assumptions all need further and more thorough research.

In sum, we may state that future research regarding the relative effect of simultaneously occurring reference groups would be very interesting, as this subject has not yet been addressed in many studies. Furthermore, it seems important to obtain more information on how these social comparison processes develop over time and on what the long-term consequences of these processes are. Finally, future research on moderators of the association between social comparison effects and academic self-concept also seems very promising. We mentioned four possibly interesting moderators: (1) the individual achievement level, (2) contingent self-worth, (3) motivation, and (4) perceived control.

Conclusion

The BFLP model is a fruitful framework for research and educational policy and practice, as we have tried to demonstrate throughout this paper. First, we can conclude hat the BFLP model is based on solid theoretical underpinnings and sound empirical evidence. Additionally, we can deduce important practical implications from this BFLP model which are highly relevant for grouping practices with students in secondary education and students with special educational needs. Third, there is a strong link between the BFLP model and social psychology, although this link is less obvious in BFLP research. Accordingly, more research combining insights from both traditions is needed. In this regard it also seems important to find out more

about the relative importance of contrast versus assimilation effects in specific contexts. Furthermore, the BFLP model may inspire further research on the relative effect of multiple reference groups, on the development of social comparison processes over time and their long-term consequences, and on moderators of the BFLP effect.

Despite our thorough overview of the BFLP model and its implications for research and practice, some limitations of the current review need to be addressed. First, we only mentioned practical implications with regard to the effect of tracking in secondary education and the effect of grouping practices for students with special educational needs. Of course there are many other implications that might be inferred. In fact, the BFLP model provides useful information for any context in which changes in important reference groups are inevitable, not only in secondary, but also in primary or higher education. For instance, this model could predict what happens to students' academic self-concept when they skip a class in primary school or when they move from a lower performing high school to a highly prestigious university. Second, in the current review, we only focused on the BFLP model to explain how the academic self-concept of students develops. Although social comparison is often a powerful source of information for students when forming their academic self-concept, there are two other key antecedents of academic self-concept which are not mentioned in the current paper (Bong & Skaalvik, 2003). Not only do students rely heavily on social comparison information to form their academic self-concept, they also use information coming from internal comparisons and reflected appraisals. The concept of internal comparison is part of the *internal/external frame of reference model* developed by Marsh in 1986. This model predicts that students' academic self-concept for a specific school subject is not only determined by other students' achievement in the same subject (i.e., external/social comparison), but also by their own achievement in other subjects (i.e., internal comparison). Additionally, many researchers (e.g., Bong & Skaalvik, 2003; Rosenberg, 1979) claim that students' academic self-concept is affected by the *reflected appraisals* of significant others. More specifically, these researchers suggest that students mould their academic self-concept at least in part based on how their teachers, their peers, or their parents perceive their abilities (Harter, 1990). Together with the social comparison processes which are central in the BFLP model, these last two factors explain how students construe evaluations of self in the academic domain.

Author's note

Main fields of interest: academic self-concept, big-fish-little-pond effect, educational decisions, school psychology.

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