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Early specialisation among Swedish aesthetic performers: exploring motivation and perceptions of parental influence

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ABSTRACT

Early specialisation is largely advised against, partly due to the postulated negative motivational implications. However, early specialisation is commonly considered necessary for high-level performance in aesthetic activities, such as gymnastics and dance. The present study, therefore, explores the relationship between motivation and early specialisation in a sample of Swedish aesthetic performers, from a self-determination theory perspective. The aims of this study were twofold: (1) to identify whether early specialisation is associated with motivation (autonomous motivation, controlled motivation, and dropout intentions) within a sample of aesthetic performers, and (2) to investigate if such relationships are moderated by perceptions of parental influence. Two hundred and ninety high-level aesthetic performers (M = 15.88 years old, SD = 2.34; 83% female) were recruited from Swedish clubs and schools to complete a questionnaire pack. The questionnaire pack included questions concerning demographic information, specialisation history, motivation, dropout intentions, and perceptions of parental influence. The results of our analyses do not support the claims that early specialisation is associated with negative motivational implications. In fact, the results show that those who reported a higher degree of specialisation ≤ 12 years old reported less controlled motivation than those who reported a lesser degree of early specialisation. Additionally, perceptions of parental influence were not found to moderate the relationship between early specialisation and motivation. These results are discussed in relation to the growing critique regarding the conceptualisation and measurement of early specialisation in sport literature.

The notion of early specialisation

Early specialisation is commonly defined as intense participation in one sport, to the exclusion of others, that is trained and/or competed in for more than 8 months of the year, characteristically referring to pre-pubertal (≤12 years old) children (LaPrade et al., 2016). The topic of early specialisation garners a great deal of academic and media interest. For example, the developmental model of sport participation (DMSP; Côté et al., 2011) focuses on the notion of early specialisation.
2007), which outlines several risks of early specialisation, had been cited over 950 times at the time of writing (Google Scholar). Several organisations such as the American Orthopaedic Society for Sport Medicine (LaPrade et al., 2016) and the International Society of Sport Psychology (Côté et al., 2009) recommend against early specialisation, in part due to the potential motivational risks such as dropout and reduced enjoyment. Many of the numerous reviews conclude that early specialisation is not necessary for high-level success and should therefore be avoided to safeguard against the postulated risks (e.g., Gould, 2010; Malina, 2010; Wiersma, 2000). Other researchers have suggested that early specialisation has been labelled as “bad” irrespective of the inconsistent results within previous literature (Baker et al., 2021; Ford & William, 2017; Kliethermes et al., 2021; Mosher et al., 2020; Waldron et al., 2020). Despite the widespread and often uncritically accepted recommendations against early specialisation, it is evident that such training continues to occur in youth sport internationally.

Early specialisation may be particularly prevalent in aesthetic sports where it has been highlighted as potentially advantageous to meet the demands of current sport structures (e.g., Kliethermes et al., 2021; LaPrade et al., 2016). Empirical evidence exploring the psychological correlates of early specialisation within this population is lacking, however. This provides rationale for the present study, which explores the relationship between early specialisation and motivational factors among a sample of Swedish aesthetic performers.

A long standing argument in favour of early specialisation is that it can be associated with high-level performance. For instance, one early study reported accumulated training hours to be positively related to attainment in gymnastics (Hume et al., 1993). A study similar in design found that although there were no significant differences in the age at which Olympic and international level gymnasts began training, the Olympic gymnasts started competing at the regional level earlier (Law et al., 2007). These findings have often been interpreted to suggest that aspects of early specialisation may be beneficial for expertise development in aesthetic activities (e.g., Coutinho et al., 2016; Côté et al., 2007; Jayanthi et al., 2013; LaPrade et al., 2016). However, these studies primarily focused on training volume. They did not capture all of the collective components of early specialisation, such as the onset of year-round training in addition to training volume and limited participation in other sports. The conclusions that may be drawn from studies like these regarding early specialisation are therefore limited.

While potentially increasing attainment, early specialisation is postulated to reduce enjoyment (Côté et al., 2007; Côté & Vierimaa, 2014). This suggestion is grounded in the notion that specialised training for the purpose of skill acquisition, through deliberate practice, is not inherently enjoyable (Ericsson et al., 1993). However, sport research has questioned this assumption, instead showing that athletes often enjoy their deliberate practice (Baker & Young, 2014). Moreover, there is a lack of empirical research exploring the relationship between enjoyment, and overall motivation, in relation to early specialisation. The literature that does exist has found varied results. For example, Russell and Symonds (2015) found that, within a sample of athletes from various sports and performance levels, motivation towards participation did not differ between specialised and non-specialised athletes. Other researchers found that gymnasts who reached milestones of specialisation earlier, such as commencing competition, were less likely to enjoy their training experience (Law et al., 2007).
Previous research has suggested that lack of enjoyment may also be a precursor to dropout (Salguero et al., 2003). Wall and Côté’s (2007) study on a small group of ice hockey players found that dropouts begun more specialised training earlier than continuing players. Such findings suggest that early specialisation may have negative implications for optimal motivational engagement. Although widely referenced as evidence against early specialisation, Wall and Côté’s (2007) study reported no differences between continuing and dropout players in terms of time in organised sport, specialised training camps and playful engagement. Instead, just one aspect of specialised training, off-ice training, was related to dropout. A more recent study by Larson and colleagues (2019) reported no significant relationships between early specialisation and dropout in competitive swimmers. This raises questions concerning the strength of the previously reported associations between early specialisation and negative psychological implications, not least because Larson et al.’s study comprised both a stronger research design and a larger sample.

**Motivational aspects of early specialisation**

There is a large body of research suggesting that motivation is one of many important factors in athlete development and success (e.g., Adie et al., 2008; Moesch et al., 2013). Motivation drives talent development in sport and ultimately impacts athletic performance and wellbeing (e.g., Elbe & Wikman, 2017; Martindale et al., 2005). Therefore, early specialisation has been suggested to be detrimental for long-term athlete development if it inhibits the development of intrinsic motivation (Côté et al., 2007).

From a self-determination theory perspective (SDT; Deci & Ryan, 1985; 2000), motivation is conceptualised to comprise six motivational regulations which correspond to being either controlled (external and introjected), autonomous (identified, integrated and intrinsic), or absent (amotivation). Controlled motivational regulations reflect behaviours associated with external pressures from rewards or punishments, or internal pressures from guilt, whereas autonomous motivation regulations reflect volition, meaningful engagement and enjoyment (Deci & Ryan, 2000). Early specialisation may foster controlled motivation if the training environment is perceived as pressurising, or the athletes do not perceive choice and autonomy in their continued training.

Autonomous motivation has long been considered beneficial to athlete development (Robinson & Carron, 1982; Vallerand & Bissonnette, 1992; Vink et al., 2015). The association between autonomous motivation and achievement may exist because people exert more effort into, and are more engaged in, an activity that is enjoyable (Ryan & Deci, 2000). Research involving high-level adolescent dancers identified that intrinsic motivation strengthens enjoyment, which in turn drives commitment (Aujla et al., 2014). We therefore explore motivational outcomes within aesthetic activities, where early specialisation may be particularly prevalent.

In addition to autonomous and controlled motivation, the present study also explores performers’ dropout intentions as an additional dimension of motivation. Dropout is often considered a potential behavioural outcome of sustained controlled motivation and/or amotivation (Vallerand & Bissonnette, 1992). For example, one study of Australian youth gymnasts reported that continuing gymnasts had greater intrinsic motives, and lesser extrinsic motives, in comparison to gymnasts who eventually dropped out (Ryska...
et al., 2002). Importantly, previous researchers have discussed the multifaceted nature of dropout from physical activities. As such, intention to drop out is added as a supplementary variable to account for aspects of dropout that may not be related to motivation, such as conflicting demands (Aujla et al., 2014). Several studies have explored the relationship between early specialisation and dropout, with mixed results (e.g., Larson et al., 2019; Wall & Côté, 2007). It is important, therefore, to continue to develop research in this area, particularly in new populations.

Despite the prevalence of articles discussing the potential motivational implications of early specialisation, DiSanti and Erickson (2019) suggested that much of the research in this area lacks a theory-driven approach. In the present study, therefore, we adopted a theoretical approach to motivation. By viewing the potential associations between early specialisation and motivation through the lens of SDT, we hope to build upon previous research. Using SDT also allows a theoretically integrated way to enhance knowledge, by examining the potential role of parental influence in the early specialisation – motivation relationship.

**Parental influence in the context of early specialisation**

The role of parents in athletic development has been explored from many perspectives. Parents are often initiators for their child’s involvement in sport and are typically responsible for providing logistical and financial support (e.g., Gould et al., 2008). In addition to initiating sport participation, parental influence remains a unique and important factor throughout all stages of athletic development (Coakley, 2006; Knight, 2017). As such, parents potentially have a significant impact, both positive and negative, on the athletic development of their children. Within the boundaries of this study, we consider how parents may impact performer motivation. A previous study of female gymnasts highlighted that autonomy support provided by parents and coaches was associated with higher autonomous motivation for training (Gagné, 2003). However, due to the well-known and perhaps overstated association between training volume and achievement (Ericsson et al., 1993), parents may encourage, or even pressurise, their children to specialise at a young age (Patel & Jayanthi, 2018). The role of parents is, therefore, important to explore in relation to the postulated outcomes of early specialisation.

Gould (2010) commented that parents can become overinvolved in youth sport because their self-competence as a parent is contingent on their child’s success. Coakley’s (2006) study also highlighted that parents are attributed success as a result of their child’s excellence in sport. Particularly in aesthetic sports, where young peak performance ages perhaps encourage early specialisation, young athletes and dancers may not be able to make informed decisions about their training. It is therefore possible that parents, and not the children themselves, are making the decision to specialise. The lack of autonomy derived from parents making decisions on behalf of their child can potentially be detrimental to the development of autonomous motivation (Deci & Ryan, 2000). As a result, those with parents who offer less autonomy support may be at greater risk of negative outcomes following early specialisation. Therefore, in the present study, we explored perceptions of parental influence as a potential moderator of the proposed relationship between early specialisation and motivation.
To our knowledge, potential moderators have not been explored within the early specialisation literature. Instead, many of the studies exploring early specialisation do so with first generation research questions; investigating for example, if x is related to y (Zanna & Fazio, 1982). The present study is, therefore, novel in introducing perceptions of parental influence as a potential moderator between early specialisation and motivational implications (i.e., a second-generation research question).

**Early specialisation in the Swedish context**

As social-cultural factors may influence the process of early specialisation, it is important to consider the Swedish context of this research. The Swedish sports confederation (Riksidrottsförbundet, 2019) supports and advocates the notion of “sport for all”, with a general mission to have as many people involved in sport for as long as possible. As such, the Swedish perspective in general opposes early specialisation in favour of promoting life-long engagement in sport for all, via playful and diversified early sport experiences (Riksidrottsförbundet, 2019). Despite this “sport for all” mission, Sjöblom and Fahlén (2010) suggested that sport in Sweden has shifted towards a more competitive and intensified culture where greater resources are available to sport clubs who have higher competitive success. Favouring competitive results, as well as increased commercialisation of youth sport, may drive early specialisation despite the strongly portrayed message against single sport specialisation before age 13 from the national sports confederation (Riksidrottsförbundet, 2019).

Research in Sweden indicates that aesthetic athletes on national teams are younger on average than other national team athletes, with over 85% of aesthetic athletes not having participated in any other organised sport besides their main one (Fahlström et al., 2015). As such, early specialisation is potentially more commonplace in aesthetic activities, indicated by the possibility for gymnasts to begin training from around age three, and dancers being able to audition for full-time training at age nine. When warnings against early specialisation in the majority of sports are both prevalent and strongly conveyed, it is worrisome that there is so little research on aesthetic populations.

Similar to the organisation of youth sport, the role of parents is also impacted by cultural factors. Eliasson (2015) suggested that Swedish parents involve their children in sports for reasons such as socialisation and fitness, and have little expectation of competitive results. As such, parents in Sweden appear to prioritise overall child development and the nurturing of positive behaviours such as teamwork, rather than specific skills development. Parents prioritising wider developmental aspects of sport involvement, and generally focusing on the best interest of their children, perhaps reflects autonomy supportive parenting behaviours within the context of Swedish youth sport.

**Aims**

Responding to calls in previous research for further empirical evidence regarding early specialisation (e.g., Ford & William, 2017; Kliethermes et al., 2021), and drawing on the somewhat contradictory research and the theoretical foundation of SDT, the aims of this study were twofold: (1) to identify whether early specialisation is associated with motivation (autonomous motivation, controlled motivation, and dropout intentions)
within a sample of aesthetic performers, and (2) to investigate if such relationships are moderated by perceptions of parental influence.

Methods

This study comprised a cross-sectional questionnaire-based design. Aesthetic performers in Sweden were recruited, via purposeful sampling, to complete questionnaires concerning demographic information, specialisation history, motivation, dropout intentions, and perceptions of parental influence. The questionnaire pack includes both validated and study-specific measures to enable exploration of the study aims.

Participants

Four recruitment criteria were employed for this study: that participants should (1) consider their aesthetic activity to be their “main” activity, (2) train three or more times per week, (3) be engaged in regular competitions (sport) or in full-time training (dance), and (4) be aged 12–20 years. Two hundred and ninety aesthetic performers aged 12–20 years (\(M = 15.88\) years old, \(SD = 2.34\); 83% female) from schools, clubs and teams within Sweden were surveyed. The sample was comprised of 115 gymnasts (25 artistic; 22 rhythmic; 51 team; 17 trampoline), 71 dancers (including a wide spread of dance styles, such as ballet, jazz and modern), 69 figure skaters, 27 divers and 8 synchronised swimmers. The performers trained an average of 15.00 h per week (\(SD = 7.74\)) and over 70% were training at national or international level (sport) or were in vocational or professional training (dance).

Measures

Early specialisation

An index approach capturing degrees of early specialisation was used (Downing et al., 2020). The index approach aims to capture each of the individual components of early specialisation (single sport, intensity, year-round, and \(\leq 12\) years old), in line with LaPrade and colleagues’ (2016) definition. As such, participants responded to questions in relation to their training volume (e.g., When you were 6 years old or younger, how many times per week did you train?), year-round engagement (e.g., between 7 and 9 years old, did you train during term time only/term time plus some holidays/term time plus most holidays/term time plus all holidays?), the age at which they reached particular specialisation milestones (e.g., How old were you when you started your main activity?), and whether or not they sampled other physical activities (e.g., What other physical activities have you participated in? Include start and stop ages).

Scores for each specialisation marker are weighted and added together to produce an index ranging from 0 (low/no early specialisation) to 42 (high degree of early specialisation). Workshops led by two of the authors were conducted with seven professionals from both applied and academic contexts to theorise what can be considered low, moderate, and high for each early specialisation marker. Drawing upon the knowledge and experience of our workshop attendees, we conceptualised that a low score would be
obtained by those who reached key milestones of early specialisation later, sampled other sports or activities, and generally trained less. A moderate degree of early specialisation would apply to those who reached several key milestones of early specialisation prior to age 13, perhaps sampled other sports/activities, and generally trained a moderate amount. A high degree of early specialisation would apply to those who reached most key milestones of early specialisation at a young age (≤6 years), never sampled other sports/activities or became single sport participants very early, and generally trained a lot from a young age.

**Motivation**

For motivation, the Behavioural Regulation in Sport Questionnaire (BRSQ; Lonsdale et al., 2008) was used. This questionnaire is widely used in sport psychology and was validated in Swedish by Stenling and colleagues (2018). The question stem “I participate in dance/sport …” was used with 24 answers conforming to the six motivational regulations. For example, “because it is fun” is a response corresponding to intrinsic motivation, and “because I would feel guilty if I quit” signifies introjected motivation. Participants responded to the items using a 7-point Likert scale from 1 (not true at all) to 7 (very true). The BRSQ has shown good levels of internal consistency, test-retest reliability and factorial validity in previous research (Lonsdale et al., 2008; Stenling et al., 2018). In line with previous research (e.g., Fenton et al., 2016), the subscales were combined to form two composite variables for autonomous (intrinsic, integrated and identified), and controlled (introjected, external) motivation.

**Dropout intentions**

For dropout intentions, a study-specific questionnaire was created as no standardised measures exist. The questionnaire is comprised of three items, which were adapted from previous studies by Le Bars et al. (2009) and Guillet et al. (2006); “is it likely that you will drop out of your main activity within the next three years?” “will you continue to participate in your main activity at a high level?” and “have you previously considered dropping out of your main activity?” Each item was rated on a 7-point Likert scale with the following anchors: 1 (not at all), 4 (maybe), and 7 (definitely). The question concerning continued participation was reverse-scored before being averaged with the other items to produce a single variable.

**Parental influence**

For perceptions of parental influence, the Perceived Parental Autonomy Support Scale (P-PASS; Mageau et al., 2015) was used. The P-PASS is situated within SDT and asks about young people’s perceptions of parental autonomy support and psychological control. To manage the diversity of the modern family, the original wording of mother and father was changed to adult one and adult two. The participants were then able to identify which adults they perceived as their main guardians. The scores for the two guardians were then averaged, in line with previous research that has identified no major differences between maternal and paternal parental autonomy support (Mageau et al., 2015). All 24
items on the P-PASS are rated on a 7-point Likert scale from 1 (do not agree at all) to 7 (strongly agree), and participants completed all items for both of their main guardians. The parental autonomy support variable is comprised of 12 items from three subscales; choice within certain limits, rationale for demands and limits, and acknowledgment of feelings, with questions such as “within certain limits, my parents allowed me the freedom to choose my own activities”. The parental control variable is also comprised of 12 items from three subscales; threats to punish, performance pressures and guilt-inducing criticism, and questions included items such as, “my parents insisted that I always be better than others”. Several studies have supported the psychometric properties of the P-PASS in a wide range of countries and languages (Costa et al., 2016; Mageau et al., 2015; Mageau et al., 2016).

**Procedure**

Ethical approval was granted by the Swedish Ethics Review Authority in line with national, European and international guidelines. Appropriate schools, clubs and national teams in Sweden were informed about the study via email, and interested coaches/teachers distributed the study information to performers. Informed consent was obtained from all participants and from parents as required. Pilot tests with three groups of dancers and gymnasts aged 12–16 years (N = 32; M age = 14.72) were conducted to provide an estimate for how long the questionnaire took to complete, and to ascertain that the youngest age groups were able to understand the questions. Questionnaires were administered at training venues with a researcher present (n = 240), or sent to the performers home address and returned via pre-paid post (n = 50). One-hour sessions were booked at training venues to allow for variation in reading and answering speed, although participants typically took 20–45 min to complete the questionnaire pack. No incentive was given for participation, however, participants completing the questionnaire at their training venue were offered a small snack.

**Statistical analysis**

Data were analysed using IBM SPSS version 26.0 (2019). Descriptive statistics for all variables can be seen in Table 1. Bivariate correlations were calculated using Spearman’s Rho

<table>
<thead>
<tr>
<th>Table 1. Descriptives and bivariate correlations.</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Early specialisation index</td>
<td>17.74</td>
<td>8.57</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Age</td>
<td>15.88</td>
<td>2.34</td>
<td>−0.21**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3. Gender</td>
<td>5.63</td>
<td>0.97</td>
<td>0.13*</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Autonomous motivation</td>
<td>2.16</td>
<td>1.13</td>
<td>−0.16*</td>
<td>0.22**</td>
<td>−0.13*</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5. Controlled motivation</td>
<td>3.17</td>
<td>1.50</td>
<td>−0.04</td>
<td>0.05</td>
<td>0.02</td>
<td>−0.34**</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. Dropout intentions</td>
<td>5.61</td>
<td>0.94</td>
<td>0.06</td>
<td>0.07</td>
<td>0.09</td>
<td>0.19**</td>
<td>−0.27**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Parental autonomy support</td>
<td>1.60</td>
<td>0.90</td>
<td>−0.01</td>
<td>0.10</td>
<td>−0.20**</td>
<td>−0.07</td>
<td>0.42**</td>
<td>0.14*</td>
<td>−0.47**</td>
<td></td>
</tr>
<tr>
<td>Cronbach’s alpha</td>
<td></td>
<td></td>
<td>0.87</td>
<td>0.88</td>
<td>0.67</td>
<td>0.86</td>
<td>0.90</td>
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</tbody>
</table>

Note: The early specialisation index has a possible range of 0-42, all other variables are scored on a 1–7 Likert scale. Gender was scored as 1 = male and 2 = female. *p < .05, **p < .01.
due to the combination of continuous, dichotomous and ordinal data being explored. All variables, except dropout intentions ($\alpha = 0.67$), produced acceptable Cronbach’s alphas at 0.7 or above (DeVellis, 2016). As the dropout intentions variable is comprised of only three items and the inter-item correlations ranged from 0.33 to 0.46, the scale can still be considered reliable (Briggs & Cheek, 1986). Skewness and kurtosis exceeded an absolute value of 2 for parental control (skew = 2.82, kurtosis = 11.47), while all other variables were within the critical values. All tests were therefore conducted with both original and transformed versions of the variables, yet no notable differences were detected. Additionally, Hayes (2018) stated that regression-based analysis makes no assumptions concerning the shape of the distributions for $y$ or its predictors; therefore, the original variables have been used throughout the statistical analyses.

Hayes’ PROCESS macro for SPSS (version 3.3, 2019) was used to explore the relationship between early specialisation and participants’ motivation, including parental autonomy support and control as moderating factors. As participant age and gender were both significantly related to reported degrees of specialisation, these were included as covariates within the analysis. Mahalanobis distance calculations were conducted with age, gender, specialisation index, parental autonomy support and parental control as independent variables; four cases violated the critical value and were removed from the moderation analysis.

**Results**

**Descriptive statistics**

Generally, the sample reported a moderate level of early specialisation (see Table 1). Specifically, participants reported reaching specialisation markers ≤ 12 years old, such as starting training in their main sport before age 7 ($M = 6.88, SD = 3.03$) and being selected into a specialist team or training programme around age 10 ($M = 10.22, SD = 3.04$). There are no guidelines on what training volume would indicate specialisation; however, in the present sample, training hours increased relatively sharply from just over one hour per week in the 0–6 age category, up to just over eight hours per week in the 10–12 age category. On average, participants reported low levels of controlled motivation and perceived parental control, moderate intentions to drop out, and high levels of autonomous motivation and perceived parental autonomy support.

**Bivariate correlations**

The correlation matrix for the specialisation index and all the composite variables can be seen in Table 1. Results indicated that older participants within the sample (range = 12–20 years) reported a lower degree of early specialisation ($r = -0.21, p < .01$), higher autonomous ($r = 0.15, p < .01$), and higher controlled motivation ($r = 0.22, p < .01$). Participants who were female were likely to report higher levels of early specialisation ($r = 0.13, p < .05$) and autonomous motivation ($r = 0.17, p < .01$), but lower levels of controlled motivation ($r = -0.13, p < 0.05$), and perceptions of parental control ($r = -0.20, p < .01$) than their male peers.
When analysing potential relationships between degree of early specialisation and the motivational variables, a significant, yet small, result was identified for controlled motivation ($r = -0.16, p < .05$). Autonomous motivation and dropout intentions were not significantly related to reported degrees of early specialisation (both $p > .05$). There were no significant relationships between degree of early specialisation and parental influence being perceived as either autonomy supportive or controlling (both $p > .05$). Perceived parental autonomy support was, however, significantly related to autonomous motivation ($r = -0.19, p < .01$), controlled motivation ($r = -0.27, p < .01$), and dropout intentions ($r = -0.14, p < .05$). Perceived parental control was significantly related to controlled motivation ($r = 0.42, p < .01$), and dropout intentions ($r = 0.14, p < .05$), but not to autonomous motivation.

**Moderation analysis**

Next, the potential moderation of relationships between degree of early specialisation and autonomous motivation or dropout intentions were explored. While it may seem counter-intuitive to explore non-significant bivariate relationships with moderation analyses, it is possible that relationships between variables emerge when moderators are introduced (Hayes, 2018).

From the regression output provided by PROCESS (see Table 2 for full details) degree of early specialisation was not identified as a significant independent predictor of autonomous motivation ($b = 0.11, t(214) = 1.59, p > .05$), controlled motivation ($b = 0.06, t(217) = 0.79, p > .05$), or dropout intentions ($b = 0.09, t(217) = 0.83, p > .05$). However, autonomous motivation was significantly predicted by age ($b = 0.07, t(214) = 2.30, p < .05$) and perceived

<table>
<thead>
<tr>
<th>Table 2. Moderation and regression results.</th>
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<tbody>
<tr>
<td>Dependent variable: Autonomous motivation (n = 222)</td>
</tr>
<tr>
<td>Early specialisation index</td>
</tr>
<tr>
<td>Parental autonomy support</td>
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<tr>
<td>Parental control</td>
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<tr>
<td>ES index X Parental autonomy support</td>
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<tr>
<td>ES index X Parental control</td>
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<tr>
<td>Age</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Dependent variable: Controlled motivation (n = 225)</td>
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<tr>
<td>Early specialisation index</td>
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<td>Parental autonomy support</td>
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<td>Parental control</td>
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<td>ES index X Parental control</td>
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<tr>
<td>Age</td>
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<tr>
<td>Gender</td>
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<tr>
<td>Dependent variable: Dropout intentions (n = 225)</td>
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<tr>
<td>Early specialisation index</td>
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<td>Parental autonomy support</td>
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<td>ES index X Parental autonomy support</td>
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<td>ES index X Parental control</td>
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<td>Age</td>
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Note: 95% confidence intervals. Age and gender are covariates.
parental autonomy support \((b = .44, t(214) = 2.22, p < .05)\). Controlled motivation and dropout intentions were not significantly predicted by any of the independent variables.

Autonomous motivation \((F(7, 222) = 2.81, p < .01, R^2 = .08)\), and controlled motivation \((F(7, 225) = 7.48, p < .001, R^2 = .19)\) were significantly predicted by the independent variables in the model, however, dropout intention was not significantly predicted \((F(7, 217) = 1.48, p > .05, R^2 = .05)\).

Results also suggested that, when controlling for age and gender, no significant interaction effects \((all p > .05)\) were found for any of the dependent variables. That is, differential perceptions of parental influence had not masked any relationships between early specialisation and motivational indices in the previous, simpler, analyses.

**Discussion**

The aim of this study was to explore potential relationships between early specialisation and motivation in high-level aesthetic performers and consider perceptions of parental influence as potential moderators of this relationship. Overall, our results do not support the widely accepted notion that early specialisation is associated with suboptimal motivation, as degree of early specialisation was not significantly related to autonomous motivation or intentions to drop out. In fact, those who reported a higher degree of early specialisation reported slightly lower controlled motivation, which directly contradicts much of the previous literature. However, the results presented here are in line with a wider movement in early specialisation research, where researchers have recently begun to reconsider some of the beliefs and recommendations surrounding early specialisation (Baker et al., 2021; DiSanti & Erickson, 2019; Downing et al., 2020; Kliethermes et al., 2021; Larson et al., 2019; Mosher et al., 2020). Such concerns are driven by an influx of recent research reporting null results when investigating the psychological associations of early specialisation (DiSanti & Erickson, 2019; Larson et al., 2019; Russell et al., 2017). Below we critically discuss our research findings and situate them within previous research, SDT, and the Swedish context.

**Early specialisation and motivation**

In the present sample of high-level aesthetic performers, reported autonomous motivation was distinctly higher than controlled motivation. Such findings mirror previous research in gymnastics and dance which found enjoyment to be a key component in success (Hume et al., 1993) and adherence (Aujla et al., 2014). Interestingly, our results also revealed that those reporting a greater degree of early specialisation reported somewhat lower levels of controlled motivation. Considering how many academics and professional organisations have aligned themselves to the notion that early specialisation has negative motivational outcomes (e.g., Côté & Vierimaa, 2014; Wall & Côté, 2007; Wiersma, 2000) this is a surprising finding. From a self-determination theory perspective, this suggests that those who specialised to a high degree would not be particularly at risk of lower motivation quality in their training. Therefore, our findings directly question the suitability of applying principles of the DMSP, at least within the context of Swedish aesthetic activities. While our results can possibly be explained from a methodological standpoint, whereby much of the early specialisation research utilises different measures (DiSanti & Erickson, 2019),
we can also consider that early specialisation may be driven by autonomous motivation. For instance, it is arguably possible for a child to initiate the specialisation process by asking to do more training within a single activity. Equally, if a child enjoys their training, they may not perceive external motives from parents or coaches to be pressurising. Future research may benefit from qualitative inquiry to explore different drivers behind early specialisation and how they are experienced.

The results also show that athletes who reported higher levels of early specialisation were no different from their less early specialised peers in terms of their intentions to drop out of their sport. This again is contentious, as a particularly well-referenced paper reports early specialisation to be a factor in dropout (Wall & Côté, 2007). However, our findings do mirror those of a recent study which found no relationship between early specialisation and dropout in high-level swimmers (Larson et al., 2019). As such, identifying no relationship between degrees of early specialisation and dropout in our results continues to build scepticism towards the application of the DMSP in aesthetic activities. This is arguably due to the reductionist nature of the DMSP being ill equipped to handle the complexity of reasons for dropout in sport. Indeed, research suggests that dropout intentions arise in response to a combination of multiple factors (Aujla et al., 2014; Eliasson & Johansson, 2020). Therefore, early specialisation alone may not be the main contributing factor in dropout.

When interpreting the results presented here, we must consider that only those continuing in their training at the time of our data collection were captured in our cross-sectional study: put simply, those who dropped out prior to, or indeed after, our data collection are naturally not represented. As such, it is possible that they did drop out due to sub-optimal motivation. Our results therefore reflect only that a higher degree of early specialisation, for those who continued training after age 12 and who took part in this particular study, was associated with somewhat lower controlled motivation but no higher/lower reported autonomous motivation or intentions to drop out. Recruiting athletes who have left their sport and investigating whether and in what ways early specialisation played a role in their dropout would, therefore, be a valuable addition to the literature.

**Early specialisation and perceptions of parental influence**

The results indicate that those who perceived higher levels of parental autonomy support also reported higher autonomous motivation, and those who perceived higher levels of parental control reported higher controlled motivation. The correlation coefficients observed in the present study are somewhat aligned to previous literature, such as the previous reported relationship between parental autonomy support and motivation in leisure time physical activity (Hagger et al., 2009). Although there are no studies using the same combination of measures as those presented in this paper, we do believe that our results show perceptions of parental influence, particularly regarding autonomy support, to be a moderately important factor in young athletes’ motivation towards training. However, perceived parental influence did not impact, or change, the investigated relationships between early specialisation and motivation. As such, we can be reasonably confident that, within the present sample at least, there is no relationship between early specialisation and motivation regardless of how the performers perceived their parents’ levels of autonomy support and control.
It is notable that perceptions of parental influence were particularly positive in this study. Specifically, performers reported high autonomy support and low control from parents. Other studies using the P-PASS questionnaire have found a more even spread of scores for perceived parental control (e.g., Costa et al., 2016; Mageau et al., 2016). This potentially reflects the notion that Scandinavian sport culture is grounded in autonomy supportive principles (Carlsson et al., 2011; Haraldsen et al., 2020; Ronglan, 2015). Beyond sport, it has been suggested that parents in Scandinavia adopt a more autonomy supportive position when compared to parenting internationally. Specifically, one study found that adolescents from Denmark perceived higher autonomy support from authority figures (including parents), than adolescents in South Korea and America (Ferguson et al., 2011). This raises questions concerning to what extent a parent would pressure their child to participate in competitive sport, or indeed initiate early specialisation, within a Scandinavian context.

While previous research has suggested that parents might externally drive their child’s early specialisation (Patel & Jayanthi, 2018), we argue that parents have the potential to initiate this process in an autonomy supportive way. For example, parents can actively seek out additional training opportunities, which are then discussed with the child before reaching a mutual decision regarding training. Alternatively, a child could be part of an extremely sporty family where everyone is or has been, for example, a gymnast. While this home environment has the potential to be perceived as pressurising, participating in gymnastics may also be a way for the child to gain a sense of identity from within the sport, and feel a greater sense of belonging with their family. As such, future research may wish to explore what it means for parents, or indeed coaches, to initiate or drive early specialisation, and whether this can be done in a way which places the athletes’ psychological wellbeing in the forefront.

The finding that participants within our study reported generally high autonomy support further reinforces the idea that perhaps early specialisation can be at least partly child-led. Specifically, if parents are not pressurising their child to specialise early, or indeed sample other sports or activities, this may lead to children following the typical pathways towards elite performance within their particular training context. As previously mentioned, aesthetic activities have long standing traditions of early specialisation, and perhaps children are happy to continue along this trajectory if it provides them with the opportunity to continue training in something they enjoy.

**Early specialisation in relation to age**

The relationship between age and reported degree of early specialisation provides some tentative support for the notion that early specialisation has become more common in recent years (Wiersma, 2000). What has driven this potential increase in early specialisation is still relatively unknown, but sports clubs may be providing more opportunities for young athletes to undertake specialised training such as training camps (Coakley, 2010). This raises questions about the extent to which future, or even current, generations of young children will specialise early. It is particularly interesting that younger participants reported a higher degree of early specialisation within a sample of aesthetic performers, where early specialisation is, arguably, already commonplace (Hume et al., 1993). In other words, younger performers are specialising early to a higher degree within training cultures
where early specialisation is already considered the norm. As such, we are uncertain what a
greater extent of early specialisation within this context would look like, or consist of.
Although this study has found no evidence of negative associations between motivation
and early specialisation, we cannot assume this relationship will be stable over time as
training norms continue to change and develop, for better or worse. Furthermore, more
research is needed for a comprehensive understanding of the relationships between
early specialisation and other variables, such as injury, burnout and identity.

Early specialisation among Swedish aesthetic performers

Identifying a trend towards increased early specialisation in aesthetic activities is particu-
larly interesting from the Swedish perspective. The Swedish Sports Confederation (Riksi-
drottfsförbundet) has consistently held a strong position against early specialisation. Their
guidelines stress the importance of letting children participate in different sports and
that the child’s all-round sporting development is prioritised (Riksidrottfsförbundet, 2019).
Moreover, youth sport in Sweden must be organised from a child rights’ perspective
which means that sport should be conducted in the best interest of the child. Despite
this, it is possible to begin training in aesthetic activities from a young age, and we question
whether later specialisation is possible within the context of Swedish aesthetic sports. For
instance, do clubs provide beginner-level training also for teenagers? In the present study,
the relatively large standard deviation shows that there is variation in the degree of early
specialisation exhibited by high-level Swedish aesthetic performers, but the relatively
high mean score also suggests that many of them can still be considered early specialisers.

There continues to be a debate about how early specialisation is conceptualised and
measured (Mosher et al., 2020). This debate is perhaps especially complicated within
the Swedish context where children sample activities as part of compulsory education.
In this study, only organised sport outside of compulsory education were included as
“sampled” activities. As such, even those scoring the highest possible scores for
degrees of early specialisation will have had some experience of other sports and physical
activities. Furthermore, instances of intra-sport diversification were identified. For
example, it was fairly commonplace for figure skaters to take part in dance training as
a means to strengthen physical or artistic skills. Future research is needed to explore
the definition of sampling within sports in general, and specifically in aesthetic sport
where intra-sport diversification appears to be prevalent.

Strengths, limitations and future research

Firstly, measuring early specialisation has been identified as problematic (DiSanti & Erick-
son, 2019; Downing et al., 2020; Mosher et al., 2020). Here we adopted an index approach,
which is a new way to capture early specialisation. Although this definition-driven
measurement tool allows exploration of more nuanced research questions, it is not
without limitations (e.g., issues identifying what should/should not be included as part
of training history). It is important to note that due to the use of a new measurement
approach, the results of this paper are not easily compared to previous research.

Another limitation of this study is its retrospective cross-sectional design. This is not a
unique limitation; in fact, the majority of previous research on early specialisation has
utilised such designs (DiSanti & Erickson, 2019). While training history and specialisation were captured retrospectively, motivation and parental influence were captured cross-sectionally. Therefore, we cannot ascertain whether the degree of autonomous and controlled motivation is consistent throughout the early specialisation process, and previous research has shown that autonomous motivation for sport may develop over time (e.g., Deci & Ryan, 2000; Vink et al., 2015). It is also important to highlight that parental influence, too, may change over time. It is understandably complex to capture early specialisation longitudinally due to the vast age range over which it can occur (i.e., anything ≤12 years is considered “early”; LaPrade et al., 2016). However, future researchers should utilise longitudinal research designs to better understand the process, and implications, of early specialisation.

A notable strength of this paper is the sampled population. Much of the previous research exploring early specialisation has sampled non-aesthetic athletes, such as soccer and hockey players (DiSanti & Erickson, 2019). As such, this paper provides a unique contribution to the field by exploring early specialisation within a sample of aesthetic performers. This research is particularly topical as early specialisation has previously been suggested as necessary and even beneficial in aesthetic activities (e.g., Coutinho et al., 2016; Côté et al., 2007; Jayanthi et al., 2013; LaPrade et al., 2016). This study, therefore, provides a foundation for larger and more sophisticated studies to follow. Importantly, the assumption that aesthetic performers must begin intensive training early has been described as a socially constructed norm or tradition rather than a scientific fact (Barker-Ruchti, 2009). Within the context of women’s artistic gymnastics, the tradition of early specialised training is believed to have originated from the Olympic success of Russian and Romanian gymnasts in the 1970s, which has since been widely adopted internationally (Barker-Ruchti, 2009). There is no known empirical evidence stating that starting gymnastics from a young age, with intensive training, and retiring early, is the only legitimate pathway towards expertise within the sport. As such, future researchers may want to explore not only the potential motivational, and other, outcomes of early specialisation, but also unpick how this tradition of early intensive training has been strongly rooted in modern society.

As aesthetic activities are typically female dominated, it was somewhat expected to recruit a greater number of female participants, despite significant attempts to identify males who met the recruitment criteria. Due to the ratio of female to male participants, it is unsuitable to speculate around gender differences in relation to early specialisation based on our results. Further research may wish to further explore the role of gender in early specialisation, particularly around ideas of prevalence and experiences of gender-specific specialised training.

Our results, which do not identify a negative relationship between degrees of early specialisation and motivation, are in opposition to the widely accepted Developmental Model of Sport Participation (DMSP; Côté et al., 2007). Our lack of support for the DMSP highlights some potential problems with the generalisability of the model to Swedish aesthetic activities. Researchers have also begun to highlight other areas of contention with the model in terms of the definition of “sampling” (Downing et al., 2020; Henriksen et al., 2010; Storm et al., 2012). Future research should continue to explore the suitability of generalised recommendations in relation to early specialisation.
Early specialisation is continuing to characterise high-level youth sport and dance, and therefore researchers must continue to unpick the potential consequences. One such direction may be via qualitative methods, whereby performer experiences of early specialisation can be voiced. Further research should also continue to consider moderators, or indeed mediators, in the relationship between early specialisation and various psychological factors. This could be done with a variety of methods. For example, exploring the role of the training environment within early specialised training programs would make a valuable addition to the literature. If early specialisation does continue to happen within aesthetic activities, we need to build a solid foundation of empirical evidence to help us decide whether to work with (i.e., exploring ways to minimise risks and enhance potential benefits) or against (i.e., suggest workable alternatives) this tradition.

**Conclusions**

This is the first known study to explore associations between early specialisation and motivation, and potential moderating factors, in a large sample of aesthetic performers. No negative associations between early specialisation and indices of motivation were found. Such results are an important addition to early specialisation literature, as they provide further rationale to explore the nuances of early specialisation. Furthermore, the saturation of literature exploring the dichotomous narrative of early specialisation as either “good” or “bad”, is providing little new evidence to the research area. Future researchers are encouraged to move away from first generation research questions, and develop studies which explore moderating, and indeed mediating, variables to help understand the complex mechanisms behind the psychological correlates of early specialisation. In this study, exploring perceptions of parental autonomy support and control as moderators did not reveal, or change, any relationships between early specialisation and motivation. However, many other factors may impact the athlete experiences, or the potential outcomes, of early specialisation. Research questions addressing why early specialisation may have different outcomes for different athletes is a warranted endeavour for future research.

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