

How Attending Mainstream School Affects Friendships and Inclusion of Deaf Students Compared with Their Hearing Peers: A Scoping Review



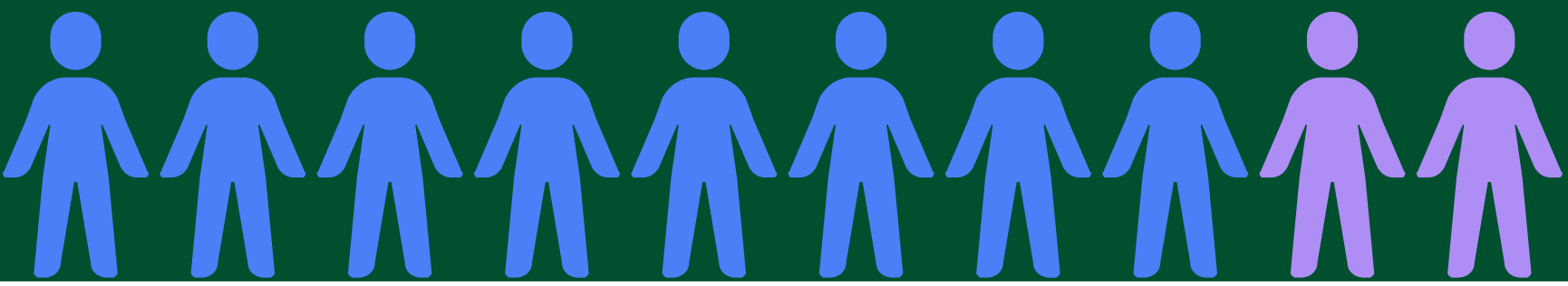
Tiffany Wan¹, Helen Niemiec², Dr Edward C Killan¹

¹School of Medicine, University of Leeds ²School of Education, University of Leeds

UNIVERSITY OF LEEDS

Background

Approximately **78%** of deaf children in England attend mainstream schools (CRIDE, 2025).



Introduction

- School is an important setting for **identity development**, **peer interaction**, and **social participation** (Verhoeven et al., 2019; Tepordei et al., 2023)
- For deaf children, communication difficulties, peer attitudes, school culture, and access to specialist support may all influence friendship formation and participation in school life (Terlektsi et al., 2020)
- Physical placement alone does not necessarily result in meaningful social inclusion or successful peer relationships in mainstream schools (Brunnberg, 2005; Powers, 2000)

Aim: To explore and summarise factors that influence friendship and inclusion experiences of deaf children attending mainstream schools, such as communication, styles, peer attitudes, teacher support, and use of assistive technology.

Results

- 18** studies published between 2001 and 2025 were included.
- 9** countries represented. Studies conducted across UK, Netherlands, Germany, Australia, US, Portugal, Sweden, and China.
- Qualitative, quantitative, and mixed method** study designs used.
- Participants were typically children and adolescents aged between **5 and 18 years old**, with **mild to profound hearing losses**.
- Some participants used assistive hearing technologies such as hearing aids, assistive listening devices (ALDs) or cochlear implants (CIs).



Mainstream placement alone should not be regarded as evidence of successful inclusion for deaf students

Image from NDCS (2026)

Key Findings & Conclusion:

- Although mainstream settings provide opportunities for interaction with hearing peers, inclusion depends on **participation, belonging**, and **access to reciprocal friendships** rather than placement alone (Brunnberg, 2005; Powers, 2002).
- Deaf students are **more likely** to experience meaningful friendships and a sense of belonging when schools actively promote deaf awareness, inclusive communication practices, and supportive social environments.
- These findings highlight the important role of Teachers of the Deaf, audiologists, and school staff in working together to reduce communication barriers and improve social inclusion for deaf students.

Method

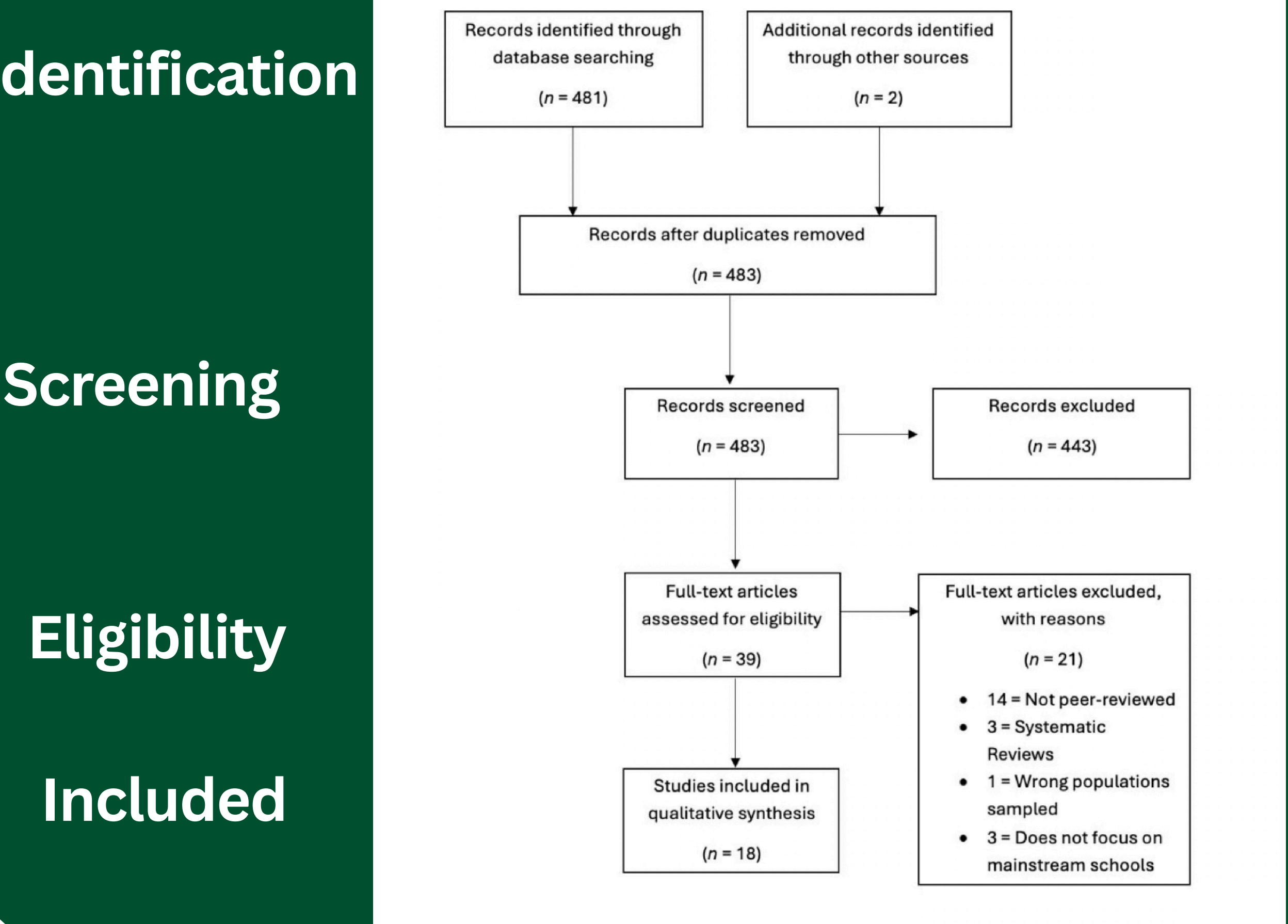
- A scoping review was conducted following the Joanna Briggs Institute (2024) guidance and Arksey and O'Malley's methodological framework (2005).
- Searches using keywords were undertaken in PubMed and Google Scholar and supplemented through hand-searching reference lists of relevant articles.
- The PRISMA-ScR Checklist (2018) was used for reporting items.
- Data were charted and analysed using thematic analysis.

Eligibility Criteria

Population	Deaf students, aged 5-18 years of age.
Concept	Friendships (peer relationships), social inclusion, sense of belonging, friendship patterns), peer attitudes
Context	Mainstream schools, both primary and secondary schools.

PRISMA ScR Flow Diagram of Study Selection

Identification



Screening

Eligibility

Included

6 key themes were identified



Friendship Experiences

- 73% of DHH participants described shared interests and intimacy in their friendship (Terlektsi et al, 2020).
- Deaf studenta are more likely to be socially neglected and less likely to have reciprocal friendships within the classroom (Nunes et al, 2001; Wolters et al, 2014)

Social Inclusion and Participation

- Several studies highlighted the value of contact with other deaf peers, suggesting that shared experiences and communication styles supported belonging and identity development (Powers, 2002; Brunnberg, 2005; Terlektsi et al., 2020).
- Other authors argued that mainstream settings provided broader opportunities for interaction with hearing peers and development of social competence (Martin and Bat-Chava, 2003; Punch and Hyde, 2005; Keilmann et al., 2007).

Barriers to Inclusion

- Deaf students in these studies frequently reported missing information during conversations, particularly within noisy or multi-speaker situations.
- Negative peer attitudes, limited awareness of hearing loss, and experiences of exclusion further contributed to difficulties in forming and maintaining relationships (Nunes et al., 2001; Powers, 2002; Terlektsi et al., 2020)

Communication

- Pragmatic language skills are important for friendship quality, including conversational turn-taking, interpreting social cues, and maintaining interactions (Wolters et al, 2012; Paatsch and Toe, 2020; Eichengreen et al; 2025).
- Increased listening effort was also reported, potentially reducing participation in spontaneous peer interactions (Martin and Bat-Chava, 2003; Todorov et al., 2021).

Facilitators of Positive Relationships

- Positive outcomes were associated with supportive school cultures, deaf awareness, inclusive teaching practices, and positive peer attitudes (Powers, 2002; Terlektsi et al., 2020).
- Confidence, self-advocacy, coping skills, and resilience were associated with more positive social experiences (Martin and Bat-Chava, 2003; Punch and Hyde, 2005; Rieffe et al., 2018).

Emotional Impact

- Positive peer relationships contributed to belonging, confidence, and higher quality of life (Punch and Hyde, 2005; Hintermair, 2011; Choi et al., 2020)
- Social difficulties were associated with loneliness, isolation, and reduced self-esteem (Wolters et al., 2014; Eichengreen et al, 2025).

References

Arksey, H. and O'Malley, L., 2005. Scoping studies: towards a methodological framework [Online]. *International Journal of Social Research Methodology*. [Online]. 8(1), pp.19-32. Available from: <https://www.tandfonline.com/doi/abs/10.1080/1364557032000119616>

Brunnberg, E. 2005. The School Playground as a Meeting Place for Hard of Hearing Children. *Scandinavian Journal of Disability Research*. [Online]. 7(2), pp. 73-90. Available from: <https://doi.org/10.1080/1601502041000335153>

Choi, J.E., Hong, S.H., and Moon, J.J. 2020. Academic Performance, Communication, and Psychosocial Development of Prelingual Deaf Children with Cochlear Implants in Mainstream Schools. *J. Audiol. Otol.* 24(2), pp.45-70. Available from: <https://pubmed.ncbi.nlm.nih.gov/31995976/>

CRIDE. 2025. 2025 report for England. Education provision for deaf children in England in 2024/25.

Da Silva, B. M. S., Rieffe, C., Frijns, J.H.M., Sousa, H., Monteiro, L., Veiga, G. 2022. Being Deaf in Mainstream Schools: The Effect of a Hearing Loss in Children's Playground Behaviors. *Children* (Basel). [Online]. 9(7) p.1091. Available from: <https://pubmed.ncbi.nlm.nih.gov/36884707/>

Eichengreen, A., Spigt, A., and Zaidman-Zait, A. 2025. Social inclusion of mainstreamed deaf or hard-of-hearing preadolescents and their perspectives on coping with communication barriers: European Journal of Special Needs Education. [Online]. 41(3), pp.491-509. Available from: <https://www.tandfonline.com/doi/full/10.1080/08856267.2025.2537508>

Fang, Y., and Zhao, M. 2025. Social development in Chinese children with cochlear implants and hearing peers: a propensity score matching study. *BMC Pediatr*. Open. [Online]. 9(1) p. 003889. Available from: <https://pubmed.ncbi.nlm.nih.gov/41371712/>

Hintermair, M. 2007. Health-related quality of life and classroom participation of deaf and hard-of-hearing students in general schools. *International Journal of Pediatric Otorhinolaryngology*. [Online]. 71(1), pp.1747-1752. Available from: <https://pubmed.ncbi.nlm.nih.gov/2092418/>

Keilmann, A., Limberger, A., and Meen, W.J. 2007. Psychological and physical well-being in hearing-impaired children. *Int. J. Pediatr. Otorhinolaryngol.* [Online]. 71(11) pp. 1747-52. Available from: <https://pubmed.ncbi.nlm.nih.gov/17804086/>

Lee, Y., Jeong, S.W., and Jeong, S.H. 2022. School adjustment of adolescents with sequential bilateral cochlear implants in mainstream school. *Int. J. Pediatr. Otorhinolaryngol.* 153 p.111338. Available from: <https://pubmed.ncbi.nlm.nih.gov/36274325/>

Martin, D., and Bat-Chava, Y. 2003. Negotiating deaf-hearing friendships: coping strategies of deaf boys and girls in mainstream schools. *Child Care Health Dev.* [Online]. 29(6), pp. 331-21. Available from: <https://pubmed.ncbi.nlm.nih.gov/14616909/>

Nunes, T., Pretzlik, U., and Olsson, J. 2001. Deaf children's social relationships in mainstream schools. *Deafness & Education International*. [Online]. 3(3), pp. 123-136. Available from: <http://www.tandfonline.com/doi/abs/10.1179/146431501209560972>

Paatsch, L., and Toe, D. 2020. The Impact of Pragmatic Delays for Deaf and Hard of Hearing Students in Mainstream Classrooms. *Pediatrics*. [Online]. 146(Suppl 3), pp. S292-S297. Available from: <https://pubmed.ncbi.nlm.nih.gov/33394643/>

Pollock, D., Peters, M.D.J., Khalil, H., McInerney, P., Alexander, L., Tricco, A.C., Evans, C., Brandão De Moraes, E., Godfrey, C.M., Pieper, D., Saran, A., Stern, C. and Munn, Z. 2023. Recommendations for the extraction of data for JBI evidence syntheses. *JBI Evidence Synthesis*, 21(3), pp.520-532. Available from: <https://doi.org/10.1112/UBES-22-00123>

Powers, S. 2002. From concepts to practice in deaf education: A United Kingdom perspective on inclusion. *Journal of Deaf Studies and Deaf Education*. [Online]. 7(3), pp. 220-243. Available at from: <https://pubmed.ncbi.nlm.nih.gov/15451975/>

Punch, R., and Hyde, M. 2005. The social participation and career decision making of hard of hearing adolescents in regular classes. *Deafness and Education International*, 7(3), pp. 122-138.

Tepordei, A.M., Zancu, A.S., Diaconu-Gherasim, L.R., Crumpei-Tanasă, I., Măirean, C., Sălivăstru, D. and Labăr, A.M. 2023. Children's peer relationships, well-being, and academic achievement: the mediating role of academic competence. *Frontiers in Psychology*. [Online]. 14 (1174127). Available from: doi: 10.3389/fpsyg.2023.1174127

Terlektsi, E., Kreppner, J., Mahon, M., Worsfold, S., and Kennedy, C.R. 2020. Peer Relationship Experiences Of Deaf And Hard-Of-Hearing Adolescents. *The Journal of Deaf Studies and Deaf Education*. 25 (2), pp. 153-165. Available from: <https://doi.org/10.1093/deafed/enz048>

Todorov, M., Galvin, K., Klieve, S., and Rickards, F. 2021. Engagement of Children who are Deaf or Hard-of-Hearing Attending Mainstream Schools. *J. Deaf Stud. Deaf Educ.* [Online]. 26(3) pp. 395-404. Available from: <https://pubmed.ncbi.nlm.nih.gov/33866369/>

Tricco, A.C., Lillie, E., Zarin, W., O'Brien, K.K., Colquhoun, H., Levac, D., Moher, D., Peters, M.D., Horsley, T., Weeks, L., Hempel, S. et al., 2018. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of Internal Medicine*, 169(7), pp.467-473. Available from: <https://www.prisma-statement.org/scoping>

Verhoeven, M., Poorthuis, A.M.G., and Volman, M. 2019. The role of school in adolescent's identity development: a literature review. *Educational Psychology Review*. [Online]. 31, pp.35-63. Available from: <https://link.springer.com/article/10.1007/s10648-018-9457-3>

Wolters, N., Knoors, H., Cillessen, A.H., Verhoeven, L. 2012. Impact of peer and teacher relations on deaf early adolescents' well-being: comparisons before and after a major school transition. *J Deaf Stud Deaf Educ.* [Online]. 17(4), pp. 463-82. Available from: <https://pubmed.ncbi.nlm.nih.gov/2298868/>

Wolters, N., Knoors, H., Cillessen, A.H., Verhoeven, L. 2014. Social Adjustment of Deaf Early Adolescents at the Start of Secondary School: The Divergent Role of Withdrawn Behavior in Peer Status. *Exceptional Children*, 80 (4), pp.438-453.