University of Southampton

Doctoral Programme in Educational Psychology

Title: Why should low socioeconomic status be related to problems with language acquisition?

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Abstract

The relationship between low socioeconomic status and problems with language acquisition has been well researched, but is often attributed to a very wide array of factors. Researchers have predominantly investigated this relationship from a social interactionist perspective, considering the impact of factors such as maternal education levels, parental warmth and quality of paid care provision. Increasingly, there is also research being carried out by neuropsychologists who are investigating how prenatal factors such as maternal alcohol and nicotine consumption may impact the child's developing brain.

This essay investigates a selection of the issues linked with socioeconomic status and considers how they could impact on a child's language acquisition. The essay concludes that in this case socioeconomic status is essentially a redundant variable – there are such a high number of interacting influences which could impact on a child's language acquisition that the label of low socioeconomic status has the potential to mask the real cause of language problems. With this in mind, the essay makes recommendations for interventions which an Educational Psychologist could put in place in order to try to address some of the causal variables associated with poor language acquisition.

Language acquisition is not a simple, linear process; there are key developmental milestones which children pass. Aged about 12-18 months children begin the slow process of early word learning, they then move to a naming explosion between the ages of 16 and 24 months and they start to put multiple words together (Bee and Boyd, 2007). Ultimately, most children develop sufficient receptive and expressive language for them to communicate with others (Bee and Boyd, 2007). However, this is not the reality for all children, and a wide body of research suggests that children are especially at risk of having problems with language acquisition if they are from a background of low socioeconomic status (SES) (Chevrot, Nardy and Barbu, 2011). In their 10 year longitudinal study of impacts on language acquisition, Walker, Greenwood, Hart and Carta (1994) note that "children raised in lower-SES environments have fewer early language experiences associated with later optimal language outcomes" (p.617). The aim of this essay is to consider why this should be the case, and then to reflect on how this may impact the practice of an Educational Psychologist (EP).

One of the key problems with this topic is that SES is a convenient construct, rather than a definitive factor. Bradley and Corwyn (2002) suggest that the best way to think of SES is in terms of capital: financial capital, human capital, and social capital. Meadows (2010) discusses the problems of relating low SES to poorer developmental outcomes for children, since SES itself is "not a causal variable – it's an index" (p.148), an idea echoed by Hoff-Ginsberg and Tardif (2002) who explain that SES is a proxy variable. Consequently, this essay will consider whether various, interrelating factors of low SES such as income, maternal education and prenatal exposure to drugs could have a negative impact on a child's language acquisition.

The link between low SES and poorer language acquisition is especially important as language difficulty prior to school is predictive of subsequent verbal ability and academic

achievement (Mcloyd, 1998; Walker et al., 1994). Yet there is not clear agreement amongst psychologists about why this should be the case. Some assert that our language development is down to genetics (Pinker, 2002), whilst social constructionists would argue that children are the products of their environment and their interactions (Woolfolk, Hughes and Walkup, 2008).

Nonetheless, there are prenatal factors which could impact language acquirement. It is recognised in neuropsychological research that if a foetus is exposed to certain drugs then its developing brain can be altered (Blakemore and Frith, 2005). This may have an effect on children born into low SES circumstances, since low-SES women are more likely to be using drugs or binge drinking both prior to and after conception (Harelick, Viola and Tahara, 2011). This prenatal exposure to alcohol, drugs or nicotine has in turn been linked to later language problems. The hippocampus, associated with learning behaviours, is shown to be particularly vulnerable to alcohol exposure during gestation which makes it clear why children who have been prenatally exposed to alcohol should find language acquisition problematic (Livy, Miller, Maier and West, 2003). Mattson, Crocker and Nguyen (2011), in their review of research into the impact of Foetal Alcohol Spectrum Disorders on neuropsychology, found that children exposed prenatally to high levels of alcohol have lower levels of verbal fluency, along with other cognitive and developmental problems; they state very clearly that "prenatal alcohol exposure is associated with speech and language disturbances" (p. 85). It should also be noted that generally the severity of outcome is correlated with the volume of alcohol consumed, but binge drinking, defined as more than five drinks at a time and found to be more prevalent in young and low-SES mothers, is especially bad for the developing foetus (Bailey et al., 2004).

Women from low-SES backgrounds are also more likely to smoke before and during pregnancy (Graham, Sherburne Hawkins and Law, 2010). Maternal smoking reduces oxygen for the foetus because the nicotine and carbon monoxide diminish the utero-placental blood flow (Key, Ferguson, Molfese, Peach, Lehman and Molfese, 2007). In their study, Key et al. (2007) found that this could result in lower receptive verbal skills for infants born to smoking mothers, when the babies' brain response to verbal stimuli was measured using event-related potentials (ERPs). Just as worryingly, prenatal drug use is thought to affect the developing brain (Meadows, 2006). Arendt et al. (2004) assessed 101 highly prenatally exposed and 130 non- drug prenatally exposed children at age seven and found that prenatal cocaine exposure led to lower WISC scores, although one might argue that cocaine is not a drug usually associated with low SES. However, children from low-SES backgrounds are more likely to have nutrient deficiencies (Nemet, Geva, and Eliakim 2011). Black (2003) conducted research which showed that structural brain changes relating to malnutrition have an impact on children's development. More research needs to be carried out in this area, but considering the impact of drugs, alcohol and smoking on language acquisition, one could certainly hypothesise that nutrient deficiency may have an effect.

So far this essay has considered how pre-natal factors could affect a child's brain development, which in turn could have detrimental effects on their language development. However, according to social interactionist principles, whilst neuropsychological differences may impact on a child, it is the environment in which the child is brought up which has the key influence on language acquisition (Woolfolk et al., 2008). Low SES is, as mentioned earlier, an index of interrelating factors and is conceptually different to low income. However, income is undoubtedly an environmental factor which can affect low-SES children; for example, less money means fewer stimulating toys and books in poorer homes (Walker et

al., 1994). This in turn could impact on language acquisition, since it is well documented that reading books with a child can help them to develop their language skills and vocabulary (Vygotsky, 1978). Linver, Brooks-Gunn and Kohen (2002) formalise this idea in their research on how low SES can impact on child development; they describe the concept of an "Income Model" where more money leads to better child development because the goods and services which parents can purchase means they invest in their children's human capital and this in turn leads to better child outcomes.

Whilst environmental factors such as income are important when considering the relationship between low SES and poor language acquisition, Meadows (2010) raises the point that parenting is "increasingly being suggested … as one of the key causal mechanisms between the association between poverty and poor outcomes" (p.151). This assertion clearly links to Vygotsky's (1978) theory of learning, specifically the Zone of Proximal Development (ZPD), where children are able to develop and extend their learning through interacting with someone more skilled. In her extensive research on language acquisition, Hoff (2003) has found maternal speech to be the mediating variable when looking at differences in language acquisition rates between high-SES and medium-SES families. But why should SES status impact on the way in which a mother interacts with her child? Hoff-Ginsberg and Tardif (2002) suggest that higher-SES mothers are more interested in the process of language acquisition, so they believe it's worthwhile to encourage children to talk. They base this assertion on a comparison between Japanese and American mothers, in which they find that whilst the higher-SES mother participants always have higher expectations than the lower-SES mother participants, their children are only significantly better in areas which the mothers value and are interested in. For Japanese mothers this is social skill, whereas for American mothers it is verbal assertiveness. Linking back to Vygotsky's (1978) ZPD, one

could argue that for higher-SES mothers language is something of interest and high value, and thus they work to extend and support their child's learning in a way that low-SES mothers may not.

Vygotsky's ZPD (1978) is also relevant when considering the increased likelihood of low-SES families to also be single parent families, potentially resulting in less parental interaction (Meadows, 2010). However, Pancsofar and Vernon-Feagans (2006) assert that the absence of a parent can have a more specific impact on a child's language acquisition, since they have found that maternal and paternal language input perform slightly different functions in aiding a child's language development. They found that whilst fathers produced less language output than mothers, they used a greater amount of more complex vocabulary, which in turn made a large contribution to the children's expressive language scores at 36 months, after results were controlled for parent education and quality of child care. This suggests that children with absent fathers may be missing a relationship which aids language acquisition.

The social interactionist theory of language acquisition also considers other language input that a young child may receive. Low-SES children are more likely to grow-up in overcrowded housing (Meadows, 2010). This in turn means that they may receive more of their language input from peers or siblings rather than parents, an idea supported by Harris (1995) and her group socialization theory of language acquisition. This can cause difficulties for children who then experience lots of early language input which is slang or pidgin English, used commonly in low-SES inner-city areas (Agha, 2007), rather than the received English children are expected to speak in the classroom (Meadows, 2006). This is a particularly interesting element considering the fact there is lots of research on how English as a Second Language can impact on language acquisition, (for example Verhoeven, Steenge,

van Weerdenburg and van Balkom, 2011; Razfar, Licon Khisty and Chval, 2011) but very little literature considering children who grow up hearing a culturally specific form of English at home and from their peers. One could postulate that this may be an area for further research since there is the potential that the language acquisition of low-SES children may be affected by the fact that they are not exposed to received English speech and pronunciation (Chevrot et al., 2011).

Another way in which children are exposed to language is through the television and media; this is thought to be especially true for low-SES children, since "parent income and parent education levels were consistently negatively associated with TV viewing" (Gorely, Marshall and Biddle, 2004). Worryingly, Zimmerman, Christakis and Meltzoff (2007) found that for infants (8-16 months), each hour per day of television viewing led to a 16.99 point decrease in their Communicative Development Inventory (CDI) score. Nonetheless, it should be noted here that the sample for the above study had relatively higher income and education levels than the population and were looking at baby DVDs and videos. However, Zimmerman et al. (2007) hypothesise that television watching negatively affects cognitive ability to acquire language as being exposed to something "absorbing but not developmentally constructive stimulus could affect brain development and language acquisition" (p. 367). Television exposure is evidently a factor which should be contemplated when one is deliberating the link between low SES and poor language acquisition.

Clearly Vygotskyan (1978) theories of language acquisition place a high value on the interaction between the mother and her child; consequently, researchers are very interested in factors affecting mothers and their ability to relate to their child. One of these influences is maternal education. Bradley and Corwyn (2002) found that maternal education levels are

associated with a child's language acquisition as well as their academic achievement; Dollaghan et al. (1999) claim this is due to the primary care giver's educational achievement affecting characteristics of the child-directed language that they use. However, other studies have found that when they control for maternal education levels, they still find that SES has a mediating effect on a child's language development (Duncan, Brooks-Gunn and Klebanov, 1994). DeGarmo, Forgatch and Martinez (1999) suggest that maternal education is actually a confounding factor, since better and more involved parenting was the key mediating factor in their study into divorced mothers and their sons' academic outcomes. They found that if mothers with a lower educational background were taught skill-building activities to complete at home with their child then any relationship between their low education level and their child's lower attainment was removed.

Another element of low-SES mothers' situations that researchers are keen to investigate is their employment. Parcel and Menaghan (1990) – using data from the National Longitudinal Survey carried out in the USA - argue that a mother's working conditions can affect the quality of language and responsive nurturing she is able to deliver to her child. Both Parcel and Menaghan (1990) and Hoff-Ginsberg and Tardif (2002) cite Kohn (1977) who argued that as 'white collar' work involves more autonomy than 'blue-collar' work, this could mean that 'white collar' parents encourage self-direction in their children, whereas 'blue collar' workers encourage conformity. Parcel and Menaghan (1990) then take this one stage further to argue that if a mother values self-direction and autonomy then her language input to her child is more likely to be extended and questioning; conversely, if a mother values conformity then her interactions with her child are likely to be shorter and less enquiring. They conclude that "maternal employment characteristics have direct effects on children's measured verbal facility" (p. 143).

It has already been discussed that mothers living in low-SES circumstances are more likely to be bringing their children up alone than high-SES mothers. Consequently, many low-SES mothers rely on childcare for their young children. It should be borne in mind at this point that clearly lots of high-SES mothers use childcare, nonetheless, returning to Linver, Brooks-Gunn and Kohen's (2002) "Income Model", childcare is still worth considering since low-SES mothers will only have access to childcare within their financial constraints, which may mean they have limited choice and that the childcare on offer is of lower quality. Meadows (2010) supports this, as she notes that nurseries in deprived areas are likely to have less money and higher child to adult ratios, so children will receive less language input. Vernon-Feagans, Hurley, and Yont (2002) found that among 41 four year-old children enrolled in full time day care, those children from high-quality child care (defined as having more educated staff and a better staff to child ratio at 1:3 as opposed to 1:8 in the poorer quality day care) used more words and utterances in a picture book task with their mothers, although it should be noted that this study was looking at children who also suffered with Otitis Media. In their longitudinal study following children from six to 36 months, Burchinal, Roberts, Riggins, Zeisel, Neebee and Bryant (2000) also found child to adult ratio to be the most important factor in language acquisition, even when they controlled for parental care at home. This study is particularly pertinent since 69% of participants were from low-SES backgrounds and 68% were from single parent families. As another factor to consider, Burchinal et al. (2000) also found that higher teacher education levels led to enhanced receptive language skills. Finally, in their study looking into whether quality of parenting or care was a better predictor of improved outcomes for children, Belsky, Burchinal, McCartney, Vandell, Clarke-Stewart and Owen (2007) found that children who had experienced higher quality care were still showing improved vocabulary scores towards the end of Primary School.

One other factor of maternal input which researchers look at when considering why low SES should be linked with poorer language acquisition is stress. Just as with childcare, stress is clearly a factor which can impact high-SES families as well as low-SES families. However, Johnston-Brooks, Lewis, Evan and Whalen (1998) argue that chronic stressors are far more detrimental to people than short-lived stress, and chronic stressors such as high household density are more likely to affect low-SES families than high-SES ones. Meadows (2010) notes than low-SES families have very little control over their exposure to stress, and Mcloyd (1998) agrees, citing violence, homelessness and illegal drugs as some of the stress factors low-SES families may have to cope with. In their study into the effects of stress on the health of school-age children, Johnston-Brooks et al. (1998) consider that stress can increase allostatic load in the brain and find that this can result in decreased brain functioning. This raises the hypothesis that a child growing up in a highly stressful environment may struggle with their language acquisition as they are not achieving optimal cognitive function. In their paper which contemplates the ability of family processes to mediate the impact of low SES on child outcomes, Linver, Brooks-Gunn and Kohen (2002) look at the 'Family Stress Model' – they posit that low income can lead to poor parental mental health, which in turn influences parenting practice and thus child outcomes. The above study found this to be the case even when results were controlled for maternal education levels and receptive verbal ability. This is also supported by a longitudinal study (Conger, Ge, Elder, Lorenz and Simons, 1994) which looked at the impact on families in Iowa, USA when their farms were repossessed – the result of this high stress experience were excessive incidences of parental depression, which resulted in poor parenting and poor child outcomes.

Aside from allostatic load, it is not immediately clear why stress should be linked to reduced language acquisition; one idea is that it involves parenting style. In their Finnish-based study, Leinonen, Solantus and Punamaki (2003) found that the parenting styles of both mothers and fathers became more punitive when experiencing stress due to economic hardship. Also, in their review of the ways in which parenting styles are affected by stress, Crnic and Low (2002) concluded that maternal sensitivity is lower when mothers are under stress. This would then connect with research carried out, such as that of Pancsofar and Vernon-Fegans (2006) which has found that higher ratings of care giver sensitivity and responsiveness have been related to good language acquisition. Burchinal et al. (2008) also discovered that if mothers became warmer, increased their language and decreased maternal harshness between a six month and a 15 month assessment then language outcomes for their child improved. This is clearly an area, however, which would be interesting to research further.

Impact on EP practice:

It is evident that the relationship between low socioeconomic status and problematic language acquisition is a complex one. However, EPs should be mindful of the fact that language development, literacy and school success have all shown to be improved for low-SES children if interventions targeting language skills can be put in place during the early years (Forget-Dubois et al., 2009). Belsky et al. (2007) found that although the quality of parental input is a better predictor of child development than the quality of other care settings, high quality care settings can still have a marked improvement on language acquisition. As earlier mentioned, children towards the end of primary school who had received 'high quality' early years care from someone paid to provide that service were shown to still have wider vocabularies than children who had not received such high quality care (Belsky et al.,

2007). Quality care settings were defined through a range of factors, including adult to child ratio, training of staff, and measures such as the amount of child-directed language from carers. Equally, revisiting the study by Vernon-Feagans et al. (2002), which found that quality of childcare had an impact on children's words and utterances on a picture book task, reminds us that the education levels of staff are imperative. Consequently, the first thing that EPs could do is to improve the quality of Early Years provision in lower-SES areas. With this in mind, EPs could set-up training for Early Years staff, explaining the importance of adult-child interactions and how best to support language learning in young children.

Another way that EPs could support language acquisition for low-SES children is through training parents in how to 'teach' their children when they are reading storybooks with them. This technique simply involves reading storybooks to children and discussing the words, even before the child can decode. This process has been shown to develop better long term language acquisition and reading skills because the process develops receptive language abilities (Senechal and LeFevre, 2002).

As discussed above, parental warmth and interaction can also mediate the effects of poverty on language development and academic outcomes (Newman and Massengill, 2006). Also, increased parental interaction and a supportive and authoritative parenting style can help to reconcile some of the effects of poverty on child development and outcomes (Moran, Ghate and van der Merwe, 2004). Therefore, EPs could instigate parenting support classes in local schools or Early Years centres which help support parents with their parent-child interactions, enabling parents to establish more supportive and affectionate connections with their child.

Finally, Wasik, Bond and Hindman (2006) demonstrated good results in improving language outcomes for whole classes of primary children by instructing teachers in how to

deliver effective language and vocabulary interventions in the early years of primary school. Although this option is less favourable as it is not such an early intervention, it would certainly be a worthwhile training session that EPs could provide to primary schools in low-SES areas.

So, why should low SES be related to problems with language acquisition?

Undoubtedly the link between low SES and problematic language acquisition is a compelling one, not least because it impacts on a vast number of children. Equally, within the restrictions of this essay there are numerous factors which have not even been considered, such as theories of intelligence, goal orientations and even the impacts of low SES on language acquisition in less economically developed countries. However, the relationship between SES and language acquisition is essentially irrelevant. The numbers of confounding variables involved within the index that we class as socioeconomic status are too vast for us to possibly classify them as one under the label of low SES. As Bradley and Corwyn (2002) explain, a "poorer developmental outcome could be one connected to family SES, a particular SES co-factor (such as single parenthood or minority status), a combination of the two, or even a 3rd variable connected to both (eg. family conflict)" (p.379). It is vital that EPs hold this in mind as they work with students, for although the different disadvantages of poverty tend to co-occur (Meadows, 2010), it is entirely possible that by working with parents or educators on improving just one of the factors discussed above, an EP could help to remove a child's barriers to language acquisition.

Although dated it seems pertinent to consider the Hoff-Ginsberg (1991) study here as it doesn't look at mother-child interactions in poverty, but instead compares 'working-class' mother-child interactions (mean annual household income of £20,000-$30,000 in 1991) with 'upper middle-class' mother-child interactions and still finds significant differences, despite

there being no differences identified in beliefs around either parenting or the value of mother-child interactions. Researchers also noticed that the 'working-class' mothers had fewer interactions and were less conversational with adult researchers than any of the 'upper middle-class' mothers. Clearly this is interesting, yet confounds the situation further – are these 'working-class' mothers struggling with some of the problems of stress that low-SES families are, or is there an entirely different factor involved such as confidence, beliefs or values?

Ultimately, an EP must approach the issue of low SES and poor language acquisition with an awareness of the fact that there can be a relationship between the two, but also a consciousness of the variety of factors which could be creating the situation. Most importantly, however, an EP should be aware of the fact that parenting can mediate some of the effects of poverty (Belsky et al., 2007) and also that moderators such as belief in personal control, dispositional optimism and self-esteem can mediate some of the negative effects of low SES on language acquisition and other developmental issues (Taylor and Seeman, 1999).

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