Student Number: 2517319 ECEY4010 1484 Words

Cover sheet.

For this assignment I have used the following: -

Part 1: Recording Activity

Part 2: Word Paper

Statement for the use of AI.

I acknowledge the use of Co-pilot between 02.03.26-23.3.26 to research and to proofread.

I used the prompt(s):

1. Benefits of Bilingualism/ multilingualism.
2. Welsh Government
3. Theorists Work

Section 1.

20260326_173320.mp4

Section 2.

Bilingualism, Brain Development, and Education in the Welsh Context.

Bilingualism and multilingualism are universally recognised as defining features of modern societies, shaped by global mobility, cultural diversity, and evolving educational priorities. Estimates suggest that more than half of the world's population uses more than one language, highlighting the pervasive and natural role of multilingualism in human life **(Baker, 2011).** Historically, bilingualism was viewed through a deficit lens, with early researchers assuming managing two languages might overload children's cognitive systems. However, contemporary research has decisively overturned these assumptions, positioning bilingualism as a cognitive, social, and cultural asset **(Grosjean, 2010).** Importantly, bilingualism exists on a continuum: individuals vary in proficiency, dominance, and the contexts in which they use each language. These experiences are shaped by societal attitudes, family practices, and educational environments. This essay explores the cognitive, social, and academic benefits of bilingualism; examines Welsh/English bilingualism with particular attention to English as an Additional Language (EAL) learners; analyses the influence of bilingualism on brain development and divergent thinking; and considers the frameworks and programmes that support bilingual learners. Drawing on contemporary research, it provides a nuanced and evidence-based discussion of bilingualism in the Welsh context.

Benefits of Bilingualism and Multilingualism

Bilingualism and multilingualism confer a wide range of cognitive, academic, social, and economic benefits. A major area of research concerns cognitive development, particularly executive functioning. **Bialystok (2011)** argues that bilingual individuals often demonstrate enhanced attentional control, inhibitory regulation, and cognitive flexibility due to the constant need to manage two linguistic systems. Selecting one language while suppressing interference from another strengthens domain-general cognitive processes, supporting problem-solving, multitasking, and adaptive thinking.

Another key benefit is enhanced metalinguistic awareness is the ability to reflect on the structure and function of language. **Bialystok and Barac (2012)** note that bilingual learners often show heightened sensitivity to linguistic patterns, which contributes to literacy development and academic achievement. **Cummins (2000)**

Common Underlying Proficiency theory further explains how cognitive and linguistic skills transfer across languages, emphasising the importance of supporting first-language development as a foundation for additional language acquisition. Recent research also suggests that early bilingual exposure can enhance phonological awareness, vocabulary acquisition, and reading comprehension **(Oliveira & Oliveira, 2022),** reinforcing the academic advantages of bilingualism.

However, the so called “bilingual advantage” is not universal. Meta-analyses reveal that cognitive benefits vary depending on proficiency, frequency of use, and age of acquisition **(Lehtonen et al., 2018; Gunnerud et al., 2020). Elliott et al. (2024)** caution that evidence for long-term cognitive reserve is inconsistent, suggesting that bilingualism contributes to, but does not guarantee cognitive enhancement. This more nuanced perspective highlights that bilingualism provides opportunities for rich cognitive engagement, but outcomes depend on individual and contextual factors.

Beyond cognition, bilingualism fosters social and cultural competencies. **Grosjean (2010)** emphasises that bilinguals navigate diverse linguistic and cultural contexts, enhancing empathy, intercultural competence, and social flexibility. Economically, multilingual individuals are increasingly valued in global labour markets, where the ability to communicate across languages and cultures is a significant asset **(Grin, 2016).** Emerging research also links multilingualism to wellbeing, with individuals reporting broader social engagement and enhanced cultural understanding **(Wang & Wei, 2024).** Collectively, these findings demonstrate that bilingualism provides multidimensional benefits extending far beyond cognitive development.

Welsh/English Bilingualism and English as an Additional Language (EAL)

The Welsh context offers a compelling example of bilingual education embedded within national identity, policy, and educational practice. The Welsh Government’s long-term strategy, ***Cymraeg 2050*****,** aims to increase the number of Welsh speakers to one million by 2050, positioning bilingual education as a central mechanism for language revitalisation **(Welsh Government, 2017).** Welsh-medium education represents a “strong” bilingual model **(Baker, 2011),** promoting elevated levels of proficiency in both Welsh and English while fostering positive attitudes toward bilingualism.

Learners in Welsh-medium schools often achieve strong academic outcomes and display heightened metalinguistic awareness **(Lewis & Jones, 2019).** These environments also support bilingual identity formation, connecting students to Welsh culture, literature, and community life. However, Wales is becoming increasingly linguistically diverse, with many pupils speaking English or other languages at home. This growing cohort of EAL learners presents both opportunities and challenges for bilingual education.

For EAL learners, inclusive pedagogical approaches are essential. **Hodges et al. (2021)** argue that recognising students' home languages as cognitive and cultural assets enhances engagement, comprehension, and confidence. Translanguaging, as conceptualised by **García and Li Wei (2014),** allows learners to draw on their full linguistic repertoires to construct meaning. For example, a learner may discuss a scientific concept in their home language before expressing their understanding in Welsh or English. Such strategies support cognitive development, deepen understanding, and promote social inclusion.

Nevertheless, challenges remain. EAL learners may require additional scaffolding to develop academic proficiency in both Welsh and English. Structured programmes, targeted support, and teacher training are essential to prevent marginalisation. Case studies from bilingual schools in North Wales show that learners who receive consistent, language-rich support achieve comparable or superior academic outcomes to monolingual peers while maintaining their home language **(Lewis & Jones, 2019).** This highlights the potential of bilingual education to support linguistic diversity when implemented effectively.

Brain Development

Neuroscientific research has significantly advanced understanding of how bilingualism influences brain structure and function. Early exposure to multiple languages enhances neural plasticity, increasing the brain's capacity to reorganise and adapt **(Mechelli et al., 2004).** Bilingual individuals often exhibit increased grey matter density in regions associated with language processing, attentional control, and executive function.

Functional imaging studies reveal that bilinguals demonstrate more efficient neural activation during cognitive tasks, reflecting strengthened control mechanisms **(Luk et**

al., 2011). Recent research also indicates that early bilingual exposure enhances brain connectivity in networks supporting executive control and working memory **(McGill University, 2024).** These findings suggest that bilingualism shapes the brain in ways that support cognitive flexibility and lifelong learning.

Bilingualism has also been associated with cognitive reserve the brain's resilience against age-related decline. **Bialystok et al. (2007)** found that bilingual individuals often experience delayed onset of Alzheimer's symptoms compared to monolinguals. However, more recent evidence emphasises variability, with cognitive reserve influenced by proficiency, frequency of use, and socio-cultural context **(Elliott et al., 2024).** This reinforces the idea that bilingualism contributes to cognitive health but interacts with broader lifestyle factors.

Importantly, both languages remain active in the bilingual brain, even when only one is being used. This constant co-activation requires ongoing inhibitory control, supporting cognitive flexibility and challenging outdated assumptions that bilingualism causes confusion or cognitive overload **(Kroll & Bialystok, 2013).** Instead, bilingualism promotes dynamic brain development and adaptability across the lifespan.

Divergent Thinking

Divergent thinking is the ability to generate multiple solutions and approach problems creatively is strongly associated with bilingualism. **Kharkhurin (2010**) found that bilinguals often outperform monolinguals in tasks requiring fluency, originality, and flexibility. **Leikin (2012)** similarly observed that bilingual learners demonstrate enhanced creative thinking in mathematics and problem-solving contexts, suggesting that exposure to multiple linguistic and cultural systems broadens cognitive frameworks.

Bilinguals' experience navigating diverse communication norms and cultural perspectives fosters adaptive thinking and perspective-taking, both key components of divergent thinking **(Grosjean, 2010).** In educational settings, promoting divergent thinking is essential for fostering creativity, resilience, and collaborative problem-solving. While bilingualism does not automatically produce creative advantage, it provides cognitive and experiential conditions that support innovation and flexible thinking.

Frameworks and Programmes

Effective bilingual education relies on established theoretical frameworks and structured programmes. **Cummins (2000)** distinguishes between Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP), emphasising the need to support learners in developing academic language proficiency alongside conversational fluency. His Common Underlying Proficiency model highlights the transferability of skills across languages, reinforcing the value of maintaining home languages.

Baker (2011) differentiates between weak and strong forms of bilingual education, with Welsh-medium education representing a strong, additive model. Translanguaging frameworks **(García & Li Wei, 2014)** encourage learners to draw upon their full linguistic repertoires, fostering deeper understanding and inclusive learning environments. Programmes such as the Welsh Language Charter (*Siarter Iaith*) and the National Centre for Learning Welsh provide structured pathways and resources to promote bilingualism in schools and communities **(Welsh Government, 2017).** Effective implementation requires well-trained teachers, adequate resources, and ongoing monitoring to ensure that learners' needs are met.

Conclusion

Bilingualism and multilingualism provide significant cognitive, social, and educational benefits, though these advantages are context-dependent and should be interpreted critically. Research demonstrates that bilingualism can enhance executive function, metalinguistic awareness, and divergent thinking while supporting cultural identity and social inclusion. Neuroscientific studies indicate positive effects on brain development and cognitive flexibility, though long-term protective effects vary across individuals.

In the Welsh context, bilingual education plays a crucial role in sustaining the Welsh language and supporting EAL learners. Translanguaging practices and structured programmes promote inclusive learning environments, while theoretical frameworks guide pedagogical decisions. When supported effectively, bilingualism functions as a dynamic cognitive and social resource, contributing to learners' intellectual, cultural, and societal development. Contemporary research underscores the value of

bilingualism in education and society, highlighting the need for informed policy, robust pedagogical practice, and continued research.

Reference List.

Baker, C. (2011) *Foundations of bilingual education and bilingualism*. 5th edn. Bristol: Multilingual Matters.

Bialystok, E. (2011) 'Reshaping the mind: The benefits of bilingualism', *Canadian Journal of Experimental Psychology*, 65(4), pp. 229–235.

Bialystok, E., and Barac, R. (2012) 'Emerging bilingualism: Dissociating advantages for metalinguistic awareness and executive control', *Cognition*, 122(1), pp. 67–73.

Bialystok, E., Craik, F.I.M. and Freedman, M. (2007) 'Bilingualism as a protection against the onset of symptoms of dementia', *Neuropsychologia*, 45(2), pp. 459–464.

Cummins, J. (2000) *Language, power, and pedagogy: Bilingual children in the crossfire*. Clevedon: Multilingual Matters.

Elliott, M.R., Mungas, D.M., Arce Rentería, M., Whitmer, R.A., DeCarli, C. and Fletcher, E.M. (2024) 'Bilingualism reduces associations between cognition and the brain at baseline but does not show evidence of cognitive reserve over time', *Bilingualism: Language and Cognition*.

García, O. and Li Wei (2014) *Translanguaging: Language, bilingualism, and education*. Basingstoke: Palgrave Macmillan.

Grosjean, F. (2010) *Bilingual: Life and reality*. Cambridge, MA: Harvard University Press.

Grin, F. (2016) 'Economic benefits of multilingualism', in May, S. (ed.) *Language policy and political issues in education*. 3rd edn. Cham: Springer, pp. 1–12.

Gunnerud, H.L., Ten Braak, D., Reikerås, E.K.L., Donolato, E. and Melby-Lervåg, M. (2020) 'Is bilingualism related to a cognitive advantage in children? A systematic review and meta-analysis,' *Psychological Bulletin*, 146(12), pp. 1059–1083.

Hodges, R., Smith, K., and Jones, H. (2021) 'Supporting multilingual learners in Welsh-medium education', *International Journal of Bilingual Education and Bilingualism*, 24(8), pp. 1123–1137. Available at:

Kalashnikova, M., Pejovic, J. and Carreiras, M. (2021) 'The effects of bilingualism on attentional processes in the first year of life', *Developmental Science*, 24(2), e13011.

Kharkhurin, A.V. (2010) ‘Bilingual verbal and nonverbal creative behaviour’, *International Journal of Bilingualism*, 14(2), pp. 211–226.

Kroll, J.F. and Bialystok, E. (2013) ‘Understanding the consequences of bilingualism for language processing and cognition’, *Journal of Cognitive Psychology*, 25(5), pp. 497–514.

Lehtonen, M., Soveri, A., Laine, A., Järvenpää, J., de Bruin, A. and Antfolk, J. (2018) ‘Is bilingualism associated with enhanced executive functioning in adults? A meta-analytic review,’ *Psychological Bulletin*, 144(4), pp. 394–425.

Leikin, M. (2012) ‘The effect of bilingualism on creativity: Developmental and educational perspectives’, *International Journal of Bilingualism*, 16(3), pp. 305–320.

Lewis, G., and Jones, B. (2019) ‘Bilingual education and academic achievement in Wales’, *Education Research and Evaluation*, 25(1–2), pp. 1–20

Luk, G., Anderson, J.A., Craik, F.I.M., Grady, C., and Bialystok, E. (2011) ‘Distinct neural correlates for two types of inhibition in bilinguals: Response inhibition versus interference suppression’, *Brain and Cognition*, 74(3), pp. 347–357.

McGill University (2024) ‘Bilingualism makes the brain more efficient, especially when learned at a young age’, *ScienceDaily*, 11 October.

Mechelli, A., Crinion, J.T., Noppeney, U., O’Doherty, J., Ashburner, J., Frackowiak, R.S.J. and Price, C.J. (2004) ‘Structural plasticity in the bilingual brain’, *Nature*, 431(7010), p. 757.

Oliveira, G.S. and Oliveira, M.B. (2022) ‘Bilingualism is always cognitively advantageous, but this does not mean what you think it means’, *Frontiers in Psychology*, 13, 867166. Available at:

Paap, K.R., Johnson, H.A. and Sawi, O. (2015) ‘Bilingual advantages in executive functioning either do not exist or are restricted to extremely specific and undetermined circumstances’, *Cortex*, 69, pp. 265–278.

Welsh Government (2017) *Cymraeg 2050: A million Welsh speakers*. Cardiff: Welsh Government. Available at: Cymraeg 2050: A million Welsh speakers (Accessed: 29 March 2026).

Wang, J., and Wei, R. (2024) ‘Is bilingualism linked to well-being? Evidence from a big-data survey,’ *Bilingualism: Language and Cognition*, 27(4), pp. 546–556.