ELTE Eötvös Loránd University, Budapest, Hungary

Recent years have seen growing interest in the notion of technology-enhanced differentiated instruction TE!"# and its ipleentation in teaching English as a foreign language E%L#& How E%L students perceive TE!", however, is relatively under-e'plored& The ai$ of this s$all-scale study was to investigate students(perceptions of TE!", i&e&, the e'tent to which students perceive that the use of technology in the E%L lessons responds to their readiness, interests

al&, 304<# or collected interview data fro$ E%L teachers with the ai$ of identifying good TE!" practices e&g&, Hustin' et al&, 304?% >Ctay-Dagy, 3033#& These studies revealed that certain applications have the capacity to cater to individual differences such as readiness levels, interests and learning styles, and that in $any cases their use can increase students($otivation, language learning e'perience and self-ef)cacy *eliefs Hustin' et al&, 304?% >Ctay-Dagy, 3033% @argas-Aarra et al&, 304<#&

To date, however, E%L students(perceptions of this relatively novel approach have rarely *een e'a$ined& Maining insight into their perspectives is of crucial i$portance to understand how TE!" is perceived *y students and to e'plore how these perceptions $ay *e related to other cognitive and affective varia*les that have *een found to *e positively lin2ed with technology-enhanced differentiated learning conte'ts e&g&, Hustin' et al&, 304?% >Ctay-Dagy, 3033% @argas-Aarra et al&, 304<#& This e'ploratory study sought to *egin to address this research gap *y

$odel 4???# has served *oth as a practical guide on how to ipleent !" in day-to-day teaching as well as a theoretical fra$ewor2 used in e$pirical studies for operationali5ing the co$ple' concept of !" into $easura*le constructs e&g&, Hustin' et al&, 304?6 T5anni, 304<#& +ccordingly, the !"-related constructs investigated in the present study were also *ased on To$linson(s $odel of !" 4???#, $ore speci)cally, on the *" ! di$ension of !", focusing on learners(interests, learning pro)les and readiness levels& The operational de)nition of each construct is presented in the ; ethod section&

The potential of "/T for differentiated teaching and learning has *een gaining increased attention lately, with growing e$pirical research on TE!" e&g&, Hay$on 9 :ilson, 30306 ; aeng, 30416 Ritter, 304<# and teacher training on TE!" e&g&, Dational "nstitute of Education, Eingapore, n&d&# ali2e& Teachers are increasingly encouraged to thin2 a*out 0hardware, software and we* resources that support QRS teaching and learning while $eeting the learning needs and styles of individual studentsP and to use these resources to foster differentiated learning environ$ents Ari$ary Arofessional !evelop$ent Eervice, n&d&, p& 4?#&

There are various reasons why "/T tools are thought to *e suita*le for supporting differentiation endeavors& %irstly, they can tap into different learning styles *y providing opportunities for students to engage in visual, auditory and social learning Ben=a$in, 300L6 Ari$ary Arofessional !evelop$ent Eervice, n&d&#& +s Ben=a$in 300L# put it, 0the interplay and possi*ilities of learning through words, i$ages and sounds R $a2e co$puters e'tre$ely effective as learning toolsP p& 1#& Eecondly, there are several "/T tools which adapt to the individual readiness levels of learners *y analy5ing their input and providing custo$i5ed feed*ac2 and practice tailored to their pro)ciency Larsen-%ree$an 9 +nderson, 30446 Teng, 3030#& Besides, technology facilitates self-paced learning, as it often lets students 0$a2e choices of when, what, and how to learn *ased on their own pro)ciency levels, goals and learning stylesP with the 0affordance of the ti$e to thin2 and the possi*ility for feed*ac2P Teng, 3030, p& 31#& +s student choice is a central aspect of !", the support "/T tools can provide in this respect see$s to

studies differed in their research $ethodology and research conte'ts, they agreed in their conclusion that the applications under investigation had the capacity to cater to individual differences such as learners(readiness levels, interests, and learning styles& Besides, they reported either on i$proved learning outco$es Rapti, 304<# or an increase in students($otivation, language learning e'perience, and self-ef)cacy *eliefs Hustin' et al&, 304?% @argas-Aarra et al&, 304<#&

Recent e$pirical research has provided valua*le insights into possi*le uses of "/T for !" in the E%L class as well as teachers(lived e'periences of this approach, which all have led to a deeper understanding of TE!" in TE%L& However, no study has to date e'a$ined E%L students(p@rceptions of TE!" in practices& P-s, students are the ones directly involved in and affected by TE!", gaining insight into their perspectives is essential to *etter understand how this approach is perceived and how these perceptions $ay *e

Arior to piloting, a thin2-aloud protocol was ad$inistered to a volunteer, and then the instru$ent was peer reviewed *y colleagues and given e'pert =udg$ent, which resulted in the rewording of so$e pro*le$atic ite$s&

The)nal ,uestionnaire consisted of -- ite$s, which $easured the following seven constructsF

4& ## # $%& ' G ite$s#F The e'tent to which students accept the use of "/T tools in the E%L lessons& E'a$pleF "li2e using "/T tools in the English lessons&

%7 €ð) €ð CÑ Ñ AÄ à .36 $ @@$3 % ( ) *% $ # %À0Aà $) " À " À

private *ilingual pri$ary school in Budapest, Hungary& +s stated in the school(s pedagogical progra$, *oth ! " and " / T for$ an integral part of daily teaching&

Based on the answers provided *y the participants in the introductory section of the ,uestionnaire and on infor$ation o*tained fro$ their teachers, all classroo$s are e,uipped with a s$art *oard and are used *y the students in every E%L lesson& The school has -0 ta*lets which are *oo2ed for each English group once or twice a wee2, so these devices are also used on a fre,uent *asis& Besides, each English group has their lesson in the " / T roo$ once a wee2, where students can wor2 on A / s individually& " / T tools are $ostly used for presentations, listening e'ercises, the learning of new voca*ulary, gra$ $ar practice and reading tas2s&

"n total, 30 girls and 4. *oys fro$ Mrade L Y 4?#, Mrade 1 Y G#, Mrade . Y .# and Mrade < Y .# participated in the study& G4Z of the students started to learn English *efore pri$ary school Y 4L#, while the rest of the$ co$$enced their English studies in Mrade 4 Y 44#, Mrade 3 Y -#, Mrade - Y L# and Mrade G Y -#& +ccording to the participants(self-reports and infor$ation o*tained fro$ their teachers, at the ti$e of the data collection the students(English pro)ciency was *etween +3 and B3[on the scale of the / o$$on European %ra$ewor2 of Reference / E%R# / ouncil of Europe, 3004#&

The online, Moogle %or$s-*ased ,uestionnaire was ad$inistered to the participants in the " / T roo$ during one of their E%L lessons& Upon co$pletion, the data were i$ported into and analy5ed with EAEE 3L&0& To chec2 construct validity and to o*tain preli$inary results, relia*ility analysis as well as descriptive and inferential statistical procedures were run&

Ta*le 4

+ ' (' & $,# $ " # '

Ecale nu$*er of ite$s#	/ ron*ach(s alpha
+cceptance of " / T tools G#	&<<
"nterest-*ased TE ! " perceptions G#	&<.
Readiness-*ased TE ! " perceptions -#	&.G
Learning pro)le-*ased TE ! " perceptions L#	&.1
Language learning e'perience 3#	&1?
; otivated learning *ehavior L#	&<-
Eelf-ef)cacy *eliefs 1#	&<L

To see if the ,uestionnaire constructs produce relia*le results, the internal consistency of the $ulti-ite$ scales was chec2ed *y co$puting the / ron*ach(s alpha relia*ility coef)cients& These coef)cients were all a*ove the accepta*ility level of &1 ! örnyei 9 / si5Vr, 3043# e'cept for) ( ) *% # and ' - ' . # & %ollowing the deletion of two ite$s fro$ *oth scales, a second round of analysis found these constructs to *e relia*le& The deleted

ite$s are shown in italics in the +ppendi'6 for the /ron*ach(s alpha values, see Ta*le 4#& However, it is i$portant to e$phasi5e that *ecause of ite$ deletion, these two scales are co$prised of only three and two ite$s, respectively, as opposed to the reco$$ended four !örnyei, 300.#& :hile the analysis in the present study was *ased on this reduced ite$ count, it is advisa*le in future research to e'pand these scales *y introducing $ore ite$s to $eet the reco$$ended ite$ count&

The calculation of descriptive statistics helped to answer RU4 and its su*-,uestions& These ,uestions e'a$ined the e'tent to which students perceive TE!" as responsive to their individual needs, $ore speci)cally, the e'tent to which students perceive that the use of "/T tools in the E%L lessons responds to their interests, learning pro)les and readiness levels& Results indicate that students perceived TE!" to align with their individual needs, with *) ( ) *% #* / 4Y G&4F, ÔóYP&±5B0 Đ² ;rL( )AP ·™•ñ#0·!O Ã G&43&?40·!O ÃY F`@and u-ñ ð (`€) *% # / Y -&1L, * Y 4&04# all having a $ean value higher than $oderate& The acceptance of "/T tools a$ong students was also relatively high / Y G&43, * Y &?G#& Ta*le 3 presents the descriptive statistics of the scales&

Ta*le 3

** # 0 # $ " # '*

Ecale	; ean	Etandard deviation
Eelf-ef)cacyf-ef)cÀghoEulatioRÆEðf)e;ðBF`@,ðT1ŲHBBA	rc"/T toolEg deðf)e4ercðeBF`@4erc0	

classroo$, which identi)ed interest for enhanced clarity as the $ost prevalent learner difference

direct causal relationship *etween these varia*les, further studies are needed to e'plore the processes underlying this pheno$enon&

Besides, a $ediu$ positive i$pact of readiness-*ased TE!" perceptions on self-ef)cacy *eliefs was also identi)ed, indicating that using "/T tools that cater to students(readiness levels has the potential to strengthen students(*eliefs of their a*ility to perfor$ E%L related tas2s successfully& These)ndings are consistent with previous research on TE!" in TE%L e&g&, Hustin' et al&, 304?6 Rapti, 304<6 @argas-Aarra et al&, 304<# and suggest that the use of certain "/T tools in the E%L class $ay indeed provide support in $a2ing the language learning process personally rewarding for students&

"n conclusion, notwithstanding the li$itations of the)ndings which ste$ fro$ the s$all sa$ple si5e and the fact that all participants study at the sa$e institution, the ,uestionnaire instru$ent was found to *e suita*le for $easuring students(perceptions of TE!"& However, it is i$portant to highlight that, as part of the relia*ility analysis, two ite$s were e'cluded fro$ *oth the readiness-*ased TE!" perceptions and language learning e'perience scales to $eet the esta*lished accepta*ility threshold of 0&1 for relia*ility coef)cients, as suggested *y !örnyei and /si5Vr 3043#& /onse,uently, in the current study6s data analysis, these scales consisted of only

software to differentiate instruction Q ! octoral dissertation, : alden UniversityS& : alden ! issertations and ! octoral Etudies&
https:FHHscholarwor2s&waldenu&eduHdissertationsH-11GH
/ ouncil of Europe& 3004#& & - $! $ $ # $ ' - › #"
/ a$*ridge University Aress&
/ si5Vr, >& 3030#& #) ' - ' 0 - & .› " # $@-
Epringer&
/ si5Vr, >&, +l*ert, M&, 9 Ainiel, >& 3034#& The interrelationship of language learning autono$y, self-ef)cacy, $otivation and e$otionsF The investigation of Hungarian secondary school students& "n ; & Aawla2 Ed&#, % 0) 0)- ' ') $$ # #) ' - '
pp& 4-34#& Epringer&

educators(views and e'tent of "/T use& % 'C - ' $ % $))-#
#" ' 4 4#, <-4L&
>hoadad, ; &, 9 >aur,]& 3041#& /ausal relationships *etween integrative $otivation, self-ef)cacy, strategy use and English language achieve$ent& 3 › - - #
- -#, 444\43L& https:FHHdoi&orgH40&4.L.1H-L-3041-330--0<
>or$os,]&, 9 /si5Vr, >& 300<#& +ge-related differences in the $otivation of learning English as a foreign languageF +ttitudes, selves, and $otivated learning *ehavior& -
75 3#, -3.\-LL&
>Ctay-Dagy, +& 3033#& Ari$ary school E%L teachers(practices and views of technology-enhanced differentiated instructionF + pilot interview study& -
) 2 GL-1L&
Lai, /& A&, Thang, :&, 9 /hang, a& L& 3030#& !ifferentiated instruction enhances si'th-grade students($athe$atics self-ef)cacy, learning $otives, and pro*le$-solving s2ills& # '
D"0) ' › % 'C - ' 15 1#, 4\4-&
https:FHHdoi&orgH40&333GHs*p&?0?G
Larsen-%ree$an, !&, 9 +nderson, ;& 3044#& #" B-) # ' ' - #" -rd ed&#&
7'ford University Aress&
Linnen*rin2, E& +&, 9 Aintrich, A& R& 3003#& ; otivation as an ena*ler for acade$ic success&
#" ' #" ' +0 ! 3 -#, -4-\-3.&
; aeng,]& L& 3041#& Using technology to facilitate differentiated high school science instruction&
+ #" # #)-# 12 L#, 40.L\40??& https:FHHdoi&orgH40&400.Hs4441L-041-?LG1-1
; ar2s, +&, : oolcott, M&, 9 ; ar2opoulos, /& 3034#& !ifferentiating instructionF !evelop$ent of a practice fra$ewor2 for and with secondary $athe$atics classroo$ teachers&
% ' '# #C - ' $ / " #)-# 6 -#, 4-4?&
https:FHHdoi&orgH40&3?---Hie=$eH444?<
; ills, D& 304G#& Eelf-ef)cacy in second language ac,uisition&"n E& ; ercer 9 ; & : illia$s Eds&#,
/-' ' #0 " '$ pp&1\33#& ; ultilingual ; atters&
Dational "nstitute of Education, Eingapore& n&d&#& Technology-enhanced differentiated instruction& https:FHHplace&nie&edu&sgH/ourseEearchH/ourse !etailsH3<4.
Aallant,]& 3040#& -00' -'› (-)) ' - Gth ed&#&
; cMraw Hill&
Ainiel, >&, 9 /si5Vr, >& 304-#& L3 $otivation, an'iety and self-ef)cacyF The interrelationship of individual varia*les in the secondary school conte't& -) #) -)
#" 3 G#, L3--LL0&
Ari$ary Arofessional !evelop$ent Eervice& n&d&#& * $$ # E
https:FHHwww&pdst&ieHsitesHdefaultH)lesHEession Z303Z30-Z30 !ifferentiation Z30Resource Z30B0B0&pdfb
Rapti, /& 304<#& #" ') $$) -# › # #" $ F = ' G
$ # # 0 '' Q ; aster(s thesis, +ristotle University of Thessaloni2i& +ristotle University of Thessaloni2i Li*rary& https:FHHi2ee&li*&auth&grHrecordH-0-<3-H)lesHMR"-304?-3G0-?&pdf
Ritter, 7& D& 304<#& % $)-# ' #" ' $ " - $) $$) -#

) /)-# Q ! octoral dissertation, University of TennesseeS& Tennessee Research and / reative E'change& https FHHtrace&tennessee&eduHcgiHviewcontent&cgiX articleY1<4<9conte'tYut2Bgraddiss

E$ith, M& E&, 9 Throne, E& 300.#& * $$ -# ! " #" ' 7#' "nternational Eociety for Technology in Education&

Eo$lin, +&, 9 + ,@300.d. +& 304?#& ! ifferentiated instruction in the E%L classroo$F ! iscrepancies *etween teachers(self-report ,uestionnaires and actual practices& '#) " # ') ') ' - # 3 4 TFE$4 C L Ó, 3&-1ðÂ-0f-3& +þ300.#&

+ €H , ! 3 0ñP + https FHHdoi&orgH40&3313Histal&v3-i0&.-L1

Tomlinson, T& 300#@ ! ifferentiated instruction in the foreign language classroo$F ; eeting the diverse needs of all learners& " & - B-H 1#, 4

) $ 5- 4??#&) $$) # ›) ") $ "' +ssociationf all ludpuntH3B0

) +' ( ) ‰)#Á ûR ' &

! ear Etudent,

This survey collects infor$ation a*out your e'periences of using " / T tools in the English lessons& This is not a test6 there are no right or wrong answers& " a$ interested in your ideas& "t ta2es around 4L $inutes to)ll out the ,uestionnaire& "t is anony$ous, so you do not have to indicate your na$e, and none of the ,uestions re,uire answers that would reveal your identity or the school you study at& " will not disclose your answers to anyone else& " will su$$ari5e all the results and write a study a*out it& The infor$ation you provide can help language teachers to *etter understand what students thin2 of using " / T tools in the English lessons&
"f you have any ,uestions a*out this study, feel free to contact $e at the following e$ail addressF
Qauthor(s e$ail addressS&

aour help is greatly appreciated&
Best regards,
Qauthor(s na$eS

L& +re there ta*lets in the classroo$ where you usually have your English lessonsX

aes Do

L [, if the answer is 8aes(#F How often do you use a ta*let in the English lessonsX

"n every English lesson or in al$ost every English lesson	7nce a wee2	+ few ti$es per $onth	+ few ti$es per school year	Dever or al$ost never

4L& " li2e using " / T tools in the English lessons&	L	G	-	3	4
41& " thin2 it is a good thing to use " / T tools in the English lessons&	L	G	-	3	4
4[illegible] : hen " have the chance to wor2 with or without an " / T device in the English lessons, " choose to wor2 with an " / T device&	L	G	-	3	4
4<& " thin2 that using " / T tools in the English lessons has a lot of *ene)ts&	L	G	-	3	4
4R& [illegible]	L	G	-	3	4
30& The tas2s that " co$plete with the help of " / T tools always spar2 $y curiosity&	L	G	-	3	4
34& The tas2s that " co$plete with the help of " / T tools are close to $y interests&	L	G	-	3	4
33& The topics of the tas2s that " co$plete with the help of " / T tools are close to $e&	L	G	-	3	4
3-& : hen " use an " / T tool to co$plete a tas2 in the English lesson, it is always clear to $e what " have to do&	L	G	-	3	4
3G& [illegible] " / T tool to co$plete a tas2 in the English lesson, " a$ sure that " a$ doing e'actly what " a$ supposed to do&	L	G	-	3	4
3L& : hen " use an " / T tool to co$plete a tas2 in the English lesson, " can do the tas2 without $a=or dif)culties&	L	G	-	3	4
6 6 % ' €@-) $ _2 ₺! " % # ? €02 " „)ß " ' " ' ! " " " ' $ %& '		G	-	3	4
2 " " %# ' ! "%& ' .# #" " $	L	G	-	3	4
3<& " feel [illegible] the English [illegible] with the help of " / cultI					

G<& aour genderF *oy girl

G?& : hich grade are you inX L 1 . <

LO& "n which grade did you start learning EnglishX

4 3 - G

L 1 . <

Done of these, " started learning English *efore pri$ary school&

L4& : hat is your level of EnglishX

*eginner inter$ediate advanced

is an assistant lecturer at the ! epart$ent of English Language Aedagogy at Eötvös Loránd University ELTE#, Hungary& Ehe holds an ; + in Teaching English and Hungarian as a %oreign Language and an ; + in "nternational Relations& Ehe is currently a doctoral candidate in the Language Aedagogy Ah ! progra$ at ELTE& Her $ain research interests are differentiated instruction in ELT and the use of educational technology in pro$oting student-centered learning environ$ents&