

VH[XDO ULVN SUHYHQWLRQ QRW RQOD IRU HWKPHLQV KLFK QDGHQ SE RW HFOVLRQISUO
WKHPVHOYHV UHJXODU DQG SUHGLFWDEOH FDKV WUDQV

1XPHURXV VWXGLHV LQ VXE 6DKDUDU ZLWK 288 WR HQFRXUDJH IRVWHULQJ DQG
XQGHUWEDNHQ LQ VRXWKHUQ \$IULFDQ IDPLOLHV DQG FRPPXOLWYVVO DQG WR S
• Gen > @ DQG =LPEDEZH > @ KDYH VKEZG WKDW RYUWYDWHG LO9 RY GLVWULFWV
JUHDWHU ULVN RI DFTXLULQJ +,9 DQG RWKHU VHXODU YHODUWLYWYHG LOIEFWLR
67,V WKDQ QRQ RUSKDQV GXH WR KHLJKWHUHQGXOLNHOYHOBEWHG HURPHDFKRI
FRHUFHG VH[DQG H[SORLWDWLRQV WKLW KLJ > KLDFVDFWLYXEDUOEDHWRQ WKH V
WUDQVDFWLRQV PD\ EH DWULEXWHG ZLWK KLJ > KLDFVDFWLYXEDUOEDHWRQ WKH V
GLVWUHVU UHVXOWLQJ IURP ORVV RI WKHQ RUDQRVFKRYRFLXEDUOEDHWRQ WKH V
KRZHYHU QRW FOHDU IURP WKHVH VWXGLHV ZKHWKHU SDUHQWV > @ JLYLQJ LW
GLDORJXH ZLWK RU WDON WR WKHLU DGROHVFHQW FKLOGUHQ DERXW VH[XDO D
UHSURGXFWLYH KHDOWK 65+ DQG +,9 GLVNDQG SUHYHQWLRQV DPSOH

,Q RUGHU WR EXLOG RQ WKH H[LVWLQJ DFWLY RYHURQ FDDHU FU
VH[XDOLW\ GLDORJXH DQG FRQWULEXWH WR HQGHWRWHSORUHDFWLYVSHUFHWY
FRQWH[VW IRU UHVSQRVLYH DGROHVFHQW 65+ DQG +,9 SUHYHQWLRQV ROLFLW
DQG LQWHUYHQWLRQV WKLW VWXG\ H[SORUH FRPPXQLW\ SHUFHFWLRQV RI
SDUHQWDO FDUHJLYHU FRPPXQLFDWLRQ ZLWK DGROHVFHQWV RQ 65+ +,9 LQ
WKUHH FRXQWLHV RIVSHDFRHMHWLRQV RI WKHQ RUDQRVFKRYRFLXEDUOEDHWRQ WKH V
DUH WR HVWDEOLVK ZKHWKHU SDUHQWDO FRPPXQLFDWLRQV FKRPPDOPDYHU FRPPXQLFDWLRQ ZLW
DGROHVFHQWV RQ 65+ +,9 RFFXUV IRU RUSKDQV DQG IRU QRQ RUSKDQV
LGHQWL\ EDUHFVSHUFHWYR DO FDUHJLYHU FRPPXQLFDWLRQ ZLWK
DGROHVFHQWV DERXW 65+ +,9 LVVXH DQG H[SORUH FRPPXQLW\
UHFPPHQGDWLRQV WR LPSURYH SDUHQWDO DQG FDUHJLYHU FRPPXQLFDWLRQ
RQ 65+ +,9

0HWKRGV

6WXG\ VHWLQJ DQG VLWH VHOHFWLRQ

H VWXG\ ZDV FRQGXFWHG VISDFRPPXQLW FRXQWLHV LQ
GLVWULFWV RI VWXG\ LQGLFDWHG LQ EUDFNHWV DV IRORZV .LVXPX .LVXPX
(DVW DQG .LVXPX :HVW GLVWULFWV 0LJRU 0LJRU 0LJRU DQG +RPD
%D\ +RPD %D\ DQG 6XED GLVWULFWV DZHHVWHUQ .HQ\D
SUHGRPLQDQWO\ LQKDELWHG E\ WKH /XR HWKQLF JURXS DQG ZHUH
SXUSRVLYHO\ FKRVLQ LQ FRJQL]DQFH RI DQ LPSHQGLQJ &DVK 7UDQVIHU &7
SLORW SURMHFW LQWHQGHG WR DGGUHVW WKH VRFLRFRQRPLF QHHGV RI RUSKDQ
DQG YXOQHUDEOH FKLOGUHQ 29& KRXXHKROGV WKH GLVWULFWV 'DWD IURP WKH
IRUPHU GLVWULFWV ZHUH LQWHQGHG WR SURYLGH DGGLWLRQDO LQVLJKW LQWR I
WKDW PD\ SUHGLVSRVH DGROHVFHQW 29& DQG QRQ 29& WR VH[XDO DQG
UHSURGXFWLYH KHDOWK 65+ +,9 H[LVNDQG SUHYHQWLRQV QHHGV

&RXQFLO \$\$& UHSUHVHQWDWLYHV FRPPXQLW\ OHYHO SRLQW SHUVRQV RQ
FKLOGUHQdV LVVXHV DQG DGROHVFHQWV

	\$GROHVFHQWV			3DUHQWV &DUHJLYHUV			7RWDO
)'V Q)'V Q)'V Q)'V Q)'V Q)'V Q)'V Q
((SHFWHG							
\$FKLHYHG							

7DEORJFXV JURXS GLVFXVLRQ VDP SOHV

3URFHGXUHV

H LQVWLWXWLRQDO UHYLHZ ERDUGV RI WKH 3RSXODWLRQ &RXQFLO WKH
.HQ\DWWD 1DWLRQDO +RVSLWDO (WKLFDV DQG 5HVHDFK &RPPLWWHH 5HYLHZ
%RDUG DQG WKH 0LQLVWU\ RI 6FLHQFH DQG 7HFQRORJ\ 1DLUREL DSSURYHG
WKLW VWXG\ &RQVHQW ZDV REWDLQHG IURP SDUHQWV FDUHJLYHUV RQ WKHLU RZ
EHKDOI IRU WKRVH ZKR SDUWLFLSDWHG LQ WKH VWXG\)'V DQG ,,V DQG RQ
EHKDOI RI PLQRUV DJHG \UV \$VVHQW ZDV REWDLQHG IURP WKH PLQRUV
IRU WKHLU SDUWLFLSDWLQJ LQ WKH VWXG\

H)'V DQG ,,V ZHUH FRQGXFWHG E\ WHQ WUDLQHG DQG H[SHULHQFHG
TXDOLWDWLYH LQWHUYLHZHUV ZKR ZHUH GLYLGHG LQWR WZR JURXS RI
LQWHUYLHZHUV ZHUH WHDFK LHZHUV ZHUH RI /XR HWKQLF EDFNJURXQG
IURP FRPPXQLWLV RWKHU WKDQ WKH VWXG\ DUHDV WR DYRLG DQ\ ELDV
WZR WHDPV ZHUH GHSOR\HG WR WKH WZR VWXG\ VLWHV ZLWKLQ D FRXQW\
FRQGXFWHG WKH GDWD FROOHFWLRQ FRQFXUUHQWO\ DQG PRYHG IURP RQH
FRXQW\ GLVWULFW WR DQRWKHU XQWLO GDWD FROOHFWLRQ ZDV FRPSOHWH
&DUHJLYHU FRQVHUYHW ZDWKRVXJHWHFWHG DGROHVFHQWV WR
SDUWLFLSDWH EHIRUH VHHNLQJ WKH DGROHVFHQWdV DVVHQW 'LVFXVLRQV DQ
LQWHUYLHZV ZHUH FRQGXFWHG LQ .LVZDKLOL 'KROXR RU (QJOLVK GHSHQGLQJ
RQ SDUWLFLSDQWd ODQJXDJH SUHWHUHQFH \$OO GLVFXVLRQV ZHUH DXGLR WDS
ZLWK SDUWLFLSDQWd FRQVHQW DQG ODVWHG KRXU WR KRXU DQG PLQXWHV
\$FWLYLWLHV ZHUH FRQGXFWHG DW D FHQWUDO ORFDWLRQ ZLWKLQ WKH FRPPXQL
EHWZHHQ D P DQG S P DV WKLW LV WKH WLPH WKH\ DUH FRPPRQO\
DYDLODEOH EHWZHHQ HDUO\ PRUQLQJ DQG HYHQLQJ FKRUHV LQ WKH IDPLO\
IDUPV DQG KRXVHKROG, VHZSHFWLRQDQDFWHG DW D
FRYHQLHQW SODFH IRU WKH UHVSROGHQWV ZLWK DXGLR SULYDF\

'DWD PDQDJHPHQW DQG DQDO\WLFDO DSSURDFK

\$OO)'V DQG ,,V ZHUH WUDQVFULEHG YHUEDWLP LQWR 06 :RUG
WUDQVODWHG LQWR (QJOLVK IRU WKRVH FRQGXFWHG LQ .LVZDKLOL RU 'KROXR DQ
DQDO\VHG XVLQJ \$WODV WL > @ :H XVHG ERWK GHGXFWLYH DQG
LQGXFWLYH DQDO\VLV DSSURDFKHV \$QDO\VLV VWDUWHG ZLWK GHGXFWLYH
DSSURDFK ZKHUH ZH GHYHORSHG WKH TXHVWLRQ GRPDLQV DQG FRGHG WKH
GD\WUDEVDVHG RQ RXU DVVXPSWLHQWd ZHUH HDEFK TXHVWLRQV
XVHG LQGXFWLYH DSSURDFK ZKHUH ZH UHYLHZHG WKH GDWD DQG EHJXQ WR
WDNH QRWH RI HPHUJLQJ WKHPH DQG SDWWHUQV DQG EDVHG RQ RWKHU
FRQWH[WXDO LQVLJKW DQG UHVHDFK ZH EHJDQ WR LQWHUSUHW DQG GUDZ
FRQFOXVLRQV > @ 3DUHQWDO FDUHJLYHU VH[XDOLW\ WDON HPHUJHG DV D WKH
ZLWK@p0WV ZA'@ -"D@b v@` A"QG -\$ P0(Q@PG HV0U p[UA'

f3DUHQWV JXDUGLDQV W DON WR DGROHVFHQWV JLYLQJ WKHP H[DPSOHV RI

\$GROHVFHQWV H[SUHVVHG GHVLUH IRU SDUHQWV DQG FDUHJLYHUV WR JLYH WKH
65+ LQIRUPDWLRQ QRWLQJ WKDW D SDUHQW FDQ PDNH WLPH WR GLVFXVV VXFK
LVVXH ZLWK WKHLU FKLOGUHQ %HVLGHV SDUHQWV DQG FDUHJLYHUV PDOH
DGROHVFHQWV DOVR UHFRPPHQGHG WKDW WHDFKHUV VKRXOG DOVR WDON WR \R

UHFPPHQGDWLRQV VXJJHVW WKDW SDUHQWV FDUHJLYHUV DQG DGROHVFHQWV
XQGHUVWRRG WKHLU VH[XDOLW\ FRPPXQLFDWLRQ QHHGV

2XU VWXG\ KDV YDULRXV OLPLWDWLRQV WKDW VKRXOG EH FRQVLGHUHG ZKHQ
LQWHUSUHWLQJ WKH UHVXOWV :H GLG QRW H[SORUH HQDEOLQJ RU PRWLYDWLRQ
IDFWRUV IRU SDUHQW FDUHJLYHU DGROHVFHQW VH[XDOLW\ FRPPXQLFDWLRQ WKD
DUH DV LPSRUWDQW DV WKH EDUULHUV LQ XQGHUVWDQGLQJ DQG LQIRUPLQJ
DSSURSULDWH VWUDWHJLHV IRU DGGUHVVLQJ DGROHVFHQW VH[XDOLW\ LQIRUPDV
QHHGV &RPPXQLW\ OHDGHUV DVVLVWHG LQ LGHQWLI\LQJ UHVSRRGHQWV XVLQJ
SUHGHWHUPLQH ~~PDULW\~~ DELDVHG WKH VHOHFWLRQ RI
SDUWLFLSDQWV DQG ~~WVXG\~~ DVSRQGHXFWHG LQ D
JHQHUDOL]HG SRYHUW\ DQG +,9 HSLGHPLF FRQWH[W 6XFK FRQWH[W PD\ KDYH
LQ~XHQ ~~QHHG~~ SRQGHQWV SHUFHSWLRQ RI SDUHQWDO FDUHJLYHU VH[XDOLW\
FRPPXQLFDWLRQ +RZHYHU WKH VWXG\ UHVXOWV SURYLGH XVHIXO LQVLJKWV WKD
FDQ LQIRUP SRVVLEOH LQWHUYHQWLRQV DQG IXUWKHU UHVHDFK WR VWUHQJW
SDUHQW FDUHJLYHU DGROHVFHQW VH[XDOLW\ FRPPXQLFDWLRQ

&RQFOXVLRQV

,Q WKLV VWXG\ ZH IRXQG WKDW DWWHPSWV DW SDUHQWDO FDUHJLYHU VH[XDOLW
WDONV ZLWK DGROHVFHQW DUH PDGH KRZHYHU WKHLU VW\OH RI FRPPXQLFDWLRQ
LQ IRUP RI ZDUQLQJV OHFWXUHV DQG RU WKUHDWV ZLWKRXW GLDORJXH WKDW D
RVHQ

'RZQLQJ - -RQHXPQDWHOCSEV \$ V\ VWHPDWLF
UHYLHZ RI SDUHQW DQG IDPHOWEDHGSVMQWHUYHQWLRQ

&LWDWLRD 0 \$ODLL - \$VNHZ \$ %DUWKORPHZ /. %RUQH %9' &RPPXQLW\ 3HUVSHFV
5HSURGXFWLYH +HDOWK DQG +,9 ZLWK \$GROHVFHQW 2USKDQV DQG 1RQ 2USKDQV L

3DJH RI

+HDOWK 0LQLVWU\ RI +HDOWK .HQ\D \$GROHVFHQW 5HSURGXFWLYH +HDOWK
DQG 'HYHORSPHQW 3ROLF\ ,PSOHPHQWDWLRQ \$VVHVVPHQW 5HSRUW